An evaluation of a community-based health promotion

Mum to Mum

programme for first-time mothers in The Netherlands
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PROPOSITIONS

Propositions by the thesis of Marian H. Hanrahan-Cahuzak

Mum to Mum

An evaluation of a community-based health promotion programme in The Netherlands

1 A healthy city is the product of close interactions between the citizens, the economic and social activities within the city and the resources and environments of the City. (Prof. Dr. John Ashton 1988, Department of Community Health, University of Liverpool).

2 Nursing actions should be based also on knowledge and not only on what is routinely practised (Con Lathouwers 1974, Community Nurse Tutor, Enschede, The Netherlands).

3 Saving a child's life is relatively cheap if you are considering the price of a childproof medicine container (Prof. Dr. John McCormack, TCD, Department of Community Health 1984).

4 Admitting a mistake is one way of showing sense.

5 It is a pity that propositions are not usually defended at a Dutch Ph.D. defence.

6 The annual number of first-time mothers in the community should be the basis for calculating the caseload of visiting mothers rather than the limited availability of MIM coordinators. (This thesis).

7 Helping relationships are effective if they facilitate the mothers' progress toward health-promoting goals (This thesis).

8 It is time to take stock of current practice to assess whether it is good practice, and to think about other services, or other ways of delivering a service. (This thesis)

9 Nurses should be able to define the criteria by which they label activities 'good practice', and be able to apply these criteria consistently to all types of activities.

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13 May 2002
Mum to Mum

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Whilst working for the Netherlands Institute for Health and Welfare a lady I since got to know better approached me after reading some papers that I had prepared for an invitational conference. Dr. Maria Koelen asked me why did not I make a PhD study out of it, as it seemed to have all the essential ingredients for a good research subject. Maria indicated that Wageningen University would give all the facilities necessary to carry the research through to conclusion. Together with Bert Prinsen she was instrumental in organising the finance necessary to carry out the project. The study was based upon the MIM programme in four locations, Breda, Dordrecht Sneek and Uden. The respective community nursing agencies in each of these locations considered this study important enough to warrant co-funding with NIZW and I acknowledge sincerely their willingness to set aside a portion of their annual budget for this purpose.

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Marian Hanrahan
Dublin, April 2002
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Chapter 1

Introduction: setting the scene

1.1 Well baby clinics and parenting

The Mothers Inform Mothers programme (MIM) was first introduced, adapted, and implemented in Breda in the early 1990s as a parent support method under the national public child health programme. In 1995 a limited process evaluation was carried out which translated into an improvement of the programme. In the mid 90s several community-nursing organisations had implemented MIM sufficiently long to act as research locations for an effect evaluation, necessary as Dutch health policy is geared to evaluate different sections of the NPCH (National Public Child Health Services) programme. Support available to new parents rearing their children is particularly under scrutiny.

Early intervention programmes and services are called upon to meet the needs of more and more children and their families. An opportunity to intervene early is created through the provision of well baby clinics, which are part of the statutory NPCH in the Netherlands. Alongside their standard health monitoring and disease-finding activities, the community nurses and social paediatricians of the well baby clinic team offer information about the normal development of infants and young children up to school going age (on average when the child is 4 years old). They provide information on health and parenting issues and stimulate positive parental mental well being and quality of life. The average time spent by mothers and infants in a well baby clinic visit is approximately 14 minutes. For some parents that is not enough, especially those in the lower income groups. Researchers have demonstrated that the social groups with the lowest incomes, the lowest levels of education and the lowest occupational status are generally the worst off when it comes to health. The NPCH programme would like to provide tailor service to these mothers. This study investigates whether the MIM programme contributes to providing tailor made services.

Parenting is probably the most important public health issue facing our society. It is the single largest variable implicated in childhood illnesses and accidents, teenage pregnancy and substance abuse, truancy, school disruption and under achievement, child abuse, unemployability, juvenile crime and mental illness. Approximately ten percent of young parents are finding themselves somewhat isolated and approximately 15 percent of all parents with school-age children experience problems such as difficult temperament, difficulties with school or their relationship with their child (corporal punishment). If risk factors accumulate, young people and their parents may no longer be able to cope. The parent-child relationship is disturbed and the risk of psychological problems developing in the child increases. These problems may be internalised (emotional problems) or externalised (behavioural problems), and they may be of a psychiatric nature. Hermanns (2000) asserts that the NPCH services may play an important role in prevention of behavioural and parenting problems. He expects that this may contribute significantly to the reduction of severe problematic youth behaviour if the NPCH service agencies for pre-school children transform
their policies and intentions into action. The MIM is one of these actions and may contribute to preventing a disturbed parent-child relationship from developing.

1.2 Mothers inform mothers programme

The MIM programme is an initiative to support first time parents. The aim of MIM is to extend the service offered by community nurses and social paediatricians of the NPCH and to provide practical support to first-time mothers. MIM is a grassroots programme developed with the aid of mothers. The MIM programme is presented in more detail in chapter 2. MIM is available to all first-time mothers living in the specific areas where the programme is implemented. However, special recruiting attention is given to families at risk. These families may be parents with migrant backgrounds, or without an adequate social support network. They could also be teenage mothers, or mothers who have experienced difficulty during or after their pregnancy in their own or their baby's health or development.

The intention of the MIM programme is to give a systematic opportunity to first-time mothers for spending up to 28 - 30 hours extra time over the first 18 months discussing health issues and child rearing topics in depth with experienced mothers, the so called 'visiting mothers'. In MIM a visiting mother visits a first-time mother in her home on a monthly basis and discusses topics concerning the caring and rearing of her infant. Parents are seen as the experts on their own child and are encouraged to solve their own problems in child rearing.

1.2.1 Basis for and positioning of the MIM programme

MIM is positioned within the infant health services and focuses on parenting support in its broadest sense. The programmes' systematic approach delivers parenting support activities in the first 18 months of their infant's life when parents are adjusting to their new role. Society has changed. Modern parents are looking for alternative sources of information as the traditional family sources are changed. In the past older girls looked after younger siblings. It was one of the ways for girls to learn to care for an infant from an early age. Migrants (either those finding skilled or unskilled work or those seeking sanctuary) are looking for information to rear their children in a different cultural setting. The volume of available information from many sources is massive and sometimes contradictory, creating difficult dilemmas for parents in choosing the most effective parenting behaviours. Parental choices are made. MIM provides a sounding board for those participating, but whether MIM is efficient needs to be evaluated.

The contents of the Netherlands infant public health service programme is influenced through its membership of the United Nations, World Health Organisation's Assembly, its support to UNICEF and being signatory to international Conventions and treaties. Dutch legislation is based on international conventions and treaties. Health and welfare services supporting parents that are funded through taxes, or public monies are based on statute. That is why in the next paragraph an overview of pertinent international and national policies pertaining to public health and the health and welfare services are presented as they impact on the implementation of the MIM programme.
1.3 International and national health and welfare policies

The international policies are presented first: Ottawa and Jakarta Declarations on Health Promotion, the Vienna Declaration on Nursing in Support of the European Targets for Health, incorporating the Primary Health Care Philosophy, the United Nations Convention of the Rights of Children and UNICEF promotion of breastfeeding. Thereafter, the national policies on health promotion, social policy, preventive youth services, community nursing, and NPCH and welfare services are briefly described.

1.3.1 Ottawa and Jakarta Declarations on health promotion

The World Health Organisation (WHO, 1986) has defined health promotion in the Ottawa Declaration as a process of enabling people to increase control over and to improve their health using 'mediating strategies between people and their environment, synthesising personal choice and social responsibility in health'. Health promotion is a process that aims at improving the quality of life of the whole population no matter what a person's basic level of health.\(^1\) Health promotion is broader than disease prevention. It recognises that those individuals wishing to adopt a healthy lifestyle may be prevented from doing so by environmental and socio-economic factors, which are often beyond their control.\(^2\) It recognises health as the ability of individuals and groups to adapt to a changing environment; to satisfy needs and to realise aspirations and it thus incorporates the physical, social and mental components of health. What is required therefore is a co-ordinated approach on two levels:

1. At government level, to remove barriers to health at national level, to encourage and press for interdepartmental co-operation in developing and facilitating the implementation of a healthy public policy;
2. At community level, to co-ordinate action to improve health through self-care, self-help and mutual aid.

The Ottawa Declaration states the prerequisites for health: peace, shelter, education, food, and income, stable eco-systems, sustainable resources, social justice and equity. Good health is seen as a major resource for social, economic and personal development and an important dimension of quality of life. Health promotion focuses on achieving equity in health and health promotion action aims at reducing differences in current health status and ensuring equal opportunities and resources to enable all people to achieve their fullest potential. The prerequisites and prospects for health cannot be ensured by the health sector alone. Health promotion demands co-ordinated action by all concerned: by governments, health and other social and economic sectors, by non-governmental and voluntary organisations and by local authorities, industry and the media. Health promotion action also means developing healthy public policy, creating supportive environments, strengthening community action, developing personal skills and reorienting the health services.

Priorities for health promotion for the 21 century are stated in the Jakarta declaration (1997).\(^1\) New responses to challenges to health were found to be necessary due to changing demographic trends (increased chronic disease and number of older people), social, behavioural and biological changes (more sedentary lifestyle, increase drug abuse, civil and domestic violence). These trends threaten the health and well being of people. The plan of action calls for decision makers to be committed to social responsibility, increased investments for health development, consolidation and expansion of partnerships for health, increase in communi-
ty capacity and empowerment of the individual and securing an infrastructure for health promotion. Strategies should follow a strategic logic, going from the international documents to national policy and to local action.

The MIM evaluation presents information on the impact of the health promotion strategy in relation to promoting maternal mental and general health, infant health, and infant food consumption, switching from feeding bottle to drinking cup, breastfeeding and the impact on the duration of breastfeeding.

1.3.2 UNICEF promotion of breastfeeding
Breastfeeding and its impact on child survival have been well documented. Breastfeeding is beneficial for a number of reasons: economically, human milk saves the family money that would otherwise be spent on expensive milk formula. For the infant, breast milk is the ideal food in both quality and quantity; it provides protection to the infant against disease and contributes to the bonding between mother and infant. Breastfeeding also provides benefits to the mother as immediate sucking after birth reduces the risk of postpartum haemorrhage. During the past decade, a variety of strategies have been used in an attempt to promote breastfeeding. These strategies include: modifying hospital policies, using social support, providing incentives, educating mothers and health workers and sometimes even initiating legislation and political action to create policies aimed towards healthier infant feeding practices. The MIM programme incorporates the promotion of breastfeeding as part of the overall health promotion strategy. The evaluation can answer the question whether promoting breastfeeding through MIM is effective.

1.3.3 United Nations Convention on the Rights of Children
The United Nations (UN) Convention on the Rights of Children (1989) applies to the rights of children and young people up to the age of eighteen all over the world. The Netherlands is a signatory to the Child Convention, which means that the State promises to fulfil all the demands of the Convention. The Child Convention states that the family is very important for the development and well being of the child, with parents having the primary responsibility for their upbringing and security. The government has the responsibility to do its utmost to ensure the rights of the child. Some of these rights are: to have a name and a nationality, not to be discriminated against because of looks, colour, sex, language, religion or opinions. Those who decide about matters that affect children should first and foremost consider the best interest of the child. Whenever children are ill they have the rights to receive help and care appropriate to their needs. Children have a right to a good life, meaning the right to play and live in a good environment and if that child has a disability it has the right to additional support and assistance. All children have the right to be with their parents, even if they do not live together. No child should be maltreated, exploited or neglected or forced to do harmful labour. No child should be abused and if that should happen, the child should get protection and assistance.
Parents have also an important right under this Convention: the right to receive support and assistance. As a health promotional method an evaluated MIM programme could contribute towards providing parenting support through the infant NPCH services.

1.3.4 Vienna and Munich Declarations on Nursing in Europe
The 1978 Declaration of Alma Ata was followed in 1979 by the launching of the global strategy for Health for All by the year 2000. Regional targets for health became the basis for new
These events demanded change in health care systems and from health personnel. Nursing, as a major force in health care, has been changing considerably in practice and education for practice. The First Ministerial Conference on Nursing in Europe convened by the WHO in collaboration with the Austrian government was held in Vienna in 1988. A resolution adopted at the 37th session of the WHO Regional Committee for Europe in 1987 requested the Regional Director for Europe to establish ways to ensure that the 1988 debate on Nursing in Vienna would continue after that event. The conference provided an opportunity for nurses to examine together the implications of the developments in nursing practice and their relationship with the targets. In a paper on the targets and their implications for nursing practice the WHO Director-General called on nurses to come together, to act as a powerhouse for change. He called for:

- The movement of nursing from the hospital into the everyday life of the community;
- Nurses to become resources for clients;
- The participation of leaders of the profession in programme planning and evaluation;
- The participation of nurses in teams for health development;
- Increases in the number of nurses leading and managing primary health care teams, and the supervising auxiliary health workers, and
- Greater responsibility for nurses making decisions within health care teams.

At the Conference several trends in nursing were identified, including the move from the biomedical model to a model emphasising client functioning and involvement in making decisions about care, and issues of cost-effectiveness. Twenty countries (including The Netherlands) reported a shift towards primary health care and community participation. A common framework and models of practice and models of excellence in curriculum development were needed. Structural changes in health care systems were promoted.

The Conference recognised that the standard of living is relatively high in most European countries and people under 25 years of age never experienced better health. Health promotion and counselling are obviously important for young people, and nurses will need to acquire competence in these and other areas to follow and guide the total development of children, alongside their families. It was agreed that nurses needed also to understand the lack of social equity for some adults; e.g. unemployment, poor housing, new groups of homeless and pockets of inner-city poverty all will affect health. They will need to support, teach, counsel, co-ordinate health services, encourage self-help and self-care, and provide competent care when needed.

Article four of the Vienna Declaration calls for nurses to develop their new role by:
- Acting as partners in decision-making on the planning and management of local, regional and national health services.
- Playing a greater role in empowering individuals, families and communities to become more self-reliant.
- Providing clear and valid information on the favourable and adverse consequences of various types of behaviour and on the merits and costs of different options for care.

In 2000 the Second Ministerial Conference on Nursing in Europe addressed the role and contributions of nurses in health development and health service delivery in Munich, Germany. The Declaration from Munich calls for actions to be taken by:
• Supporting research and dissemination of information to develop the knowledge and evidence base for practice in nursing.
• Seeking opportunities to establish and support family-focused community nursing programme and services, and
• Enhancing the role of nurses in public health, health promotion and community development
• Enabling nurses to work efficiently and effectively and to their full potential both as independent and interdependent professionals.

Evaluating the MIM programme from a nursing perspective is opportune, as the new role of nurses is to support visiting mothers in their work as auxiliary health promotion workers. Impact of the programme on nursing practice can provide information for implementing MIM in other organisations.

1.4 Dutch health and welfare legislation

The Netherlands is a small densely populated country with democratic institutions and a constitutional monarchy. Although the queen is formal Head of State executive powers lies with different branches of government. The Dutch 'polder model' in which interest groups are strong and which follows the tradition of seeking consensus or compromise requires participatory decision-making. National health policy and its overall financial supervision lie with the Ministry of Health, Welfare and Sports, but the health insurers, local authorities, municipal health authorities and the community-nursing agencies participate in the decision-making process. This is important as the need for cost containment and improvement of efficiency in health care has resulted recently in proposals for new structures and financing system for the NPCH services.

NPCH services provide an integrated programme that is part of the overall health system. It is only one of the pieces of an essential network of economic and social support provided by the government to families. There is a strong conviction that achievement of child health goals requires not only health services, but also cash and non-cash benefits, housing supports, child care services and social services needed by the family, (see later in this chapter). Parents without referral can access the services without stigma being attached and a very high percentage of mothers (approximately 95% in the first year) from all walks of life use the well baby clinics. The NPCH service is governed by different sets of legislation.

The level and scope of health care services are not the only items that could influence the well being of its individual clients. The level of quality of service as experienced by the clients is also important. The Dutch government felt the need to evaluate pertinent legislation in the light of modern thinking, new international agreements and important financial arguments. They found some legislation to be outdated and a barrier to effective and efficient services such as the use of new medical technologies in primary health care. This legislation needed to be reviewed, amended or replaced. It was also decided to develop new legislation concerning the quality of care.

Dutch quality of care legislation stimulates and supports self-regulation by emphasising the primary responsibility of the care sector. The relevant professional bodies have traditionally
laid down Professional standards for nursing and medical care. These are often based on consensus and are regularly revisited. They play a valuable role in evaluating the acts of professional practitioners. Over the past decade the Dutch government enacted various legislation on aspects of quality of care with a view to forming a framework in which all quality aspects in health care would fit. Specific legislation is:

- **Contract for Medical Treatment Act**, (1994): this Act codifies the obligations of a ‘good care provider’. In part of the Act the conditions of ‘informed consent’ are laid down. As such it covers the work done in well baby clinics by the community nurses and social paediatricians.
- **Exceptional Expenses Act (AWBZ, 1962)**: this Act traditionally funded long-term nursing and community nursing activities of which the well baby clinic was a constitutional part. This has changed. The co-ordination and responsibility for the NPCH services for 0 to four-year-olds is being transferred to local authorities. These authorities were already responsible for NPCH activities for children of primary and secondary school age. The current NPCH service for 0 to four-year-olds has a separate financial status pending the enactment and proper transfer of money and responsibilities from the local community-nursing agency to the relevant local authority.
- **Individual Health Care Professions Act**, (1997): this Act refers to the individual ‘good practice’ of the professional. It creates the necessary prerequisites to high professional services (policy on training, refresher and in-service training and education for health professionals). The act covers the nurses and social paediatricians working in the well baby clinics.
- **Quality of Care (Institutions) Act**, (1996): The Act expressly lays down that in institutions providing care systematic monitoring, control and improvement of quality should take place.

This Act obliges institutions also to introduce a permanent system of promoting and monitoring quality of care (giving users of the services access to standardised complaints procedures) and to publish an annual quality of care report which must be made available to the public. The working of the Act covers intra- and extramural facilities for general and mental-health care and as such covers the NPCH services as provided by the community-nursing agencies. Guidelines for ‘good practice’ are:

1. The care offered should seek to meet the real needs of the client; the need is to balance the provision of care against the requirement of the individual client.
2. The client should receive only such care as she actually wishes to receive. Proper harmonisation of supply and demand at this level means that care provided for the client is tailored to her specific needs and not simply to ‘the average requirement of the average client’.
3. Care should be of a high standard; the relevant aspects here are mainly those of medical and nursing care. Examples are
   - Effectiveness, (does the care actually contribute to an improvement),
   - Competence, (does the provider have the necessary knowledge and skills),
   - Precision, (are knowledge and skills applied appropriately), and
   - Safety, (is the risk associated with the intervention kept to a minimum)?
4. Care should be delivered efficiently; efficient care is that the input in terms of money, resources and time is in reasonable proportion to the yield expressed in terms of benefit deriving from the care.
5. Care should be client-oriented:
   - Relevant here is the nature of client treatment (is the client accorded her natural dignity).
• Willingness to provide information (is the client furnished with information relevant to her case).
• Accountability (is the care provider willing and able to account for her actions and treatment).
• Public Health (Preventive Measures) Act (1990). Local authorities are required to set up a preventive health programme for all residents. They are further required to establish a health service at local or regional level that enables them to co-ordinate and supervise preventive policy and launch new initiatives. Major areas covered by the Act are school health care, health education, prevention of infectious diseases, the promotion of mental health and safety. This Act is in the foreseeable future the basis for activities provided by the NPCH Programme.

1.4.1 Dutch policy on health promotion
Our health is influenced to an important degree by lifestyle, behaviour and nutrition, as well as by various environmental and social factors. In recent years the importance of nutrition to health status has been increasingly recognised. The common trends in recommendations include a reduction in consumption of dietary fat, particularly saturated fat, reduction in the consumption of salt, an increase in the consumption of dietary fibre and a moderation in alcohol intake. Women are also encouraged to breastfeed their infants.

Dutch policy promotes breastfeeding through health professionals in working hospitals and in the community. The Ministry of Health, Welfare and Sport encourage health professionals and lay persons to promote breastfeeding in any way they can. The work of the Breastfeeding Foundation has possibly increased the number of babies receiving breast milk. The promotion of breastfeeding also received an important impetus since the publication of the Health Inspectorate’ Bulletin on Nutrition for infants and toddlers in 1999. Promotion of breastfeeding is a topic that is incorporated within the MIM programme.

The Netherlands has adopted the WHO targets as part of their ‘Health for All ’ campaign. Health for all by the year 2000 was an aim from the WHO based on an ecological health model. Bronfenbrenner’s human ecology model provided a framework for conceptualising the multiple and mutually embedded networks and systems in which human development occurs. This model served as a basis for the Dutch government policy Memorandum 2000 and subsequent public health policies. The model is presented in more detail in chapter 4.

In 1996 the results of an evaluation of the public child programme for 0 - 4 year olds was published highlighting the difficulties and lacunae in the service, especially the transition from pre-school to school-going public health services. The statutory responsibility for NCPH programme is shared by community-nursing agencies who are responsible for all babies and pre-schoolers and municipal or regional health authorities who are responsible for all school going children. The government decided to scrutinise the NPCH programme and established a Working Group that published their finding in 1998. This was followed in 2000 with the publication of a ministerial policy document Positioning Public Health for 0 - 19 year olds.

The decision was taken to amalgamate the public child health services and make local authorities responsible for the service. Negotiations concerning service providers are still continuing (spring 2001). Parenting support services are explicitly mentioned in the new public health programme. In 2000 and 2001 respectively a new public health policy and a new national con-
tract were signed jointly by four ministries: Ministry of Health, Welfare and Sports, Ministry of the Interior and Kingdom Relations, and the Ministry for Large Cities and Integration Policy. The contract is between these Ministries and the Association of Netherlands Municipalities with the Netherlands Community Health Association. It aims to stimulate closer co-operation and contacts between state health and welfare services and local (health) authorities with a view:

- To reducing inequalities in health and the integration of disadvantaged groups into mainstream Dutch society and
- To stimulating the use of healthy lifestyles by the Dutch population.

The contract calls for integration of state and local services as a pre-requisite to enhance the use of preventive and health promotion services by members of these groups. Other partners mentioned in the contract for fostering co-operation are health and welfare care providers, insurers and national patient organisations. Activities are centred on three themes: equal (health) opportunities for all citizens, promotion of health and co-operation between cure and care settings and the public health sector. Pre-requisites between parties covering policy changes, infra-structural changes, quality assurance and the setting-up of an action plan are dealt with.

The NPCH parenting support services is part of a health promotion programme based on public health and health promotion policies. At the start of the study the aim of the NPCH services was to promote and safeguard a healthy physical, mental, and social development of the population of pre-school children, taking into account the parents own responsibility. This general aim was translated into four operational subsidiary objectives:

1. To improve immunity against infectious disease;
2. To detect the threat of individual health risks and disorders in time, and if necessary, refer;
3. To promote, at an individual and collective level, the personal competence and the responsibility of parents with regard to their children, if necessary by advancing their understanding of the health condition and the (potential) development of their child and by increasing their competence (health promotion);
4. To provide insight into the health condition of (groups of) young people, to point out social risk factors that threaten health and to contribute to the elimination of these factors.

The MIM programme would be categorised under point 3. The programme promotes on an individual and collective level the personal competence and responsibility of parents with regard to their infant and, if necessary, advance their understanding of a healthy development of their infant and facilitate enhancement of their competence (see chapter 2 for a description of the MIM programme). The innovative practices that are being developed or implemented have often a temporary status and are often executed on a project basis until their worth has been shown. This is also the case with MIM!

1.4.2 Policies to stimulate innovative practices
There had always been room for innovative activities within the NPCH services. The necessary finance for these activities usually comes from a combination of the Netherlands Institute for Care and Welfare (NIZW), municipal subsidies, municipal subsidies, re-allocation of funds and grants from charities or child care foundations. The NIZW has been instrumental in many of the current projects within community-nursing agencies. Funding this Institute comes from the Ministry of Health, Welfare and Sports. However, in recent years there has been some
reluctance to innovate practices in public child (infant) health services because the focus of activities is directed towards evaluation of present services. The innovative practices currently being developed focus on stimulating efficient and effective professional and informal services, with special attention to families in need.

1.4.3 Policies to reduce social inequalities in health
The predecessor of the Ministry of Health, Welfare and Sport established the first Programme Committee on Socio-economic Health Differences (SEHD) in 1989. The aim was to investigate the possibilities of reducing SEHD over time. The Dutch government commissioned a review of the literature on evaluated interventions to reduce socio-economic health differences. The review purposely included as many local-level interventions as possible, even though these were often not formally published. Many interventions identified were intended for early childhood. The most successful one always combined the provision of information with either structural measures or personal support. In 1995 the second Programme Committee was installed for a period of five years with the following aims:
- Systematic experiences with specific interventions focus on reducing SEHD.
- Monitoring the development of SEHD.
- Further expansion of knowledge with particular relevance to the background of SEHD.

Mackenbach and Van der Maas (1989) that considerable differences in health could occur between socio-economic groups within a population. People from lower socio-economic groups generally take less part in preventive health care programmes. For example, Swinkels (1995) found a higher percentage of children from well-educated mothers attend the preventive child health clinic than do children of mother with a lower education. In MIM the co-ordinators recruit mothers from all social strata, but especially those from lower socio-economic groups and those with only primary educational level.

1.4.4 National social policy
The social context of the 1990s has given rise to a number of policy measures with a view to encouraging social integration and cohesion in the Netherlands. The current government programme, which started in 1998, emphasises strongly the ideas of social integration and social cohesion in society. The government determined that far too many people in the Netherlands are on the outside looking in, i.e. inadequate participation in economic and social matters. Moreover, it points to the ties between the different generations and between the population groups with different ethnic and cultural backgrounds. The government has stated that these ties are of great importance for social cohesion in the country. Thus comes the policy to maintain and repair these ties, particularly in the cities, as ‘it is there that social cohesion must be maintained or repaired and the safety of citizen assured’. In MIM local mothers (first-time and visiting mothers) are recruited in an attempt to stimulate local cohesion and community ownership of the programme.

In the 1990s there are three major policy programmes which have been introduced and which each in their own way have contributed towards the improvement of social cohesion and social integration. These policy programmes are Social Renewal, and Local Social Policy and National Youth Policy.
1.4.5 Social renewal
Social renewal was introduced in 1990 and aimed in particular at those people who found themselves outside the world of work (long-term unemployed). It sought the improvement of the daily lives of people coupled with an improvement in the effectiveness and the quality of those services that were charged with the solution of the problems. A cardinal principle was that policy in this area must be closer to the citizens' needs. For these reasons local authorities were granted greater room for manoeuvre in the area of policy. Other cardinal principles of the social renewal process were better co-operation between different bodies so that with less rules and regulations more people could be reached. There was also the unorthodox tackling of the problems. Creativity, brashness, and the breaking down of large problems into smaller components were important aspects. This policy helped to renovate neighbourhoods, stimulated neighbourhood actions to combat poverty, littering, drug abuse to provide safe areas and playgrounds for children.

National government stimulated the social renewal by means of a generous targeted social renewal subsidy. Local authorities were given the option by the national government of choosing this new subsidy in place of the many separate subsidies intended for specific activities. In January 1994 the Temporary Law for Stimulating Social Renewal came into effect. This legislation regulates decentralisation in many areas of work for all local authorities. It provides an opening to develop a coherent set of policies for local communities and for providing the means for local concerted action. Social renewal influences the MIM programme only indirectly as it acts as a municipal policy framework and helps to provide an important prerequisite for parenting, safe neighbourhoods.

1.4.6 Local social policy
The Local Social Policy was introduced in 1996. In recent years a series of what had previously been national government tasks have been decentralised to the local authority level. The administration of the Dutch National Assistance Act has recently been placed in the hand of the local authorities. At the same time a series of legislative measures have been introduced which have given to the local authorities the regional role in combating educational inequality. Having become more autonomous than in the past local authorities have been granted even more authorisations for the analysis, prevention, and solution of social problems. To such an extent that the adjective 'local' has become part and parcel of a series of policy areas, e.g. local combat poverty, local educational policy, local activity policy, local quality of life policy, local safety and security policy and local youth policy. These close knit policy fields together form the local social policy. Linking these policies with public (child) health is important. Some municipalities subsidise the initial implementing phase of the MIM programme from funds based on this policy, sometimes with the proviso that the different organisations working for parents with pre-school children work together and jointly provide the new activity.

1.4.7 National youth policy
The Netherlands is a multi-cultural society with approximately 12 percent of young people between the ages of 0 to 25 born abroad or non-Dutch nationals. Almost half of the young people living in the largest cities have a foreign background. Children receive their primary socialisation at home. To help parents cope the Department of Welfare stimulated experiments with community programmes, which focused on parenting support for parents of young children aged two to six. The projects were focused on early learning activities.
Financed research efforts included also an overview of the art of ‘normal’ parenting in The Netherlands from 0 to young adulthood.\textsuperscript{31}

The national youth policy is indirectly impacting on the MIM programme as it is focused on pre-school children and their parents. Some managers see early learning programmes in direct competition to the MIM programme. MIM however, is not an early learning programme and it finishes well before the start of other programmes. If necessary, participants finishing their MIM participation could progress to any of the early learning programmes developed under this policy as they help parents to get their children ready for school.

1.5 Conclusion so far

The need for cost containment and improvement of efficiency in health care has resulted recently in proposals for new structures and new financing system. The MIM programme is positioned within the NPCH services and until recently funded, as a project, through the AWBZ Act. Funding and co-ordination of infant and youth public health is now governed by the Public Health (Preventive Measures) Act under the responsibility of local authorities. Community-nursing agencies, willing to provide the MIM programme are currently seeking additional funding for the initial phases of implementation. Some community-nursing agencies received permission to allocate AWBZ funds from their local health insurer to pay for the initial setting up of the MIM programme, whilst others received local authority subsidies based on local welfare policies.

Nurses and MIM co-ordinators must comply with the professional standards as stipulated by their profession and by Dutch quality assurance legislation. This means that MIM also needs to enforce the guidelines for ‘good practice’ (see page 21).

Three policy programmes are relevant since they are in one way or another connected with partly funding the implementation of MIM in the different localities: Reduce Social Inequalities in Health, Social Policy and Social Renewal. The MIM programme is often situated in disadvantaged neighbourhoods, which are designated social renewal areas. MIM is an innovative practice within public infant health that touches intimately on parenting from a health perspective in a neighbourhood context. Parenting in the infant period compasses activities that were traditionally seen from a health perspective (healthy child development). When the infant becomes a pre-school child (2.5 - 3 years) parental activities focus more on those that are traditionally seen in the welfare domain (getting the child ready for school, cognitive and speech development, play and social development). In the new situation health and welfare are connected and local services are encouraged to co-operate to stimulate healthy neighbourhoods and communities that care.

MIM is eligible for local subsidies to enhance healthy parenting and child development and promote speech and learning through play. But does the MIM programme enhance the NPCH service? That is the central question in the study.

1.6 Purpose and aim of the study and research questions

To include MIM in the NPCH programme it has to be a viable, effective and efficient means to reach and support first-time parents. The purpose of the study was to evaluate MIM and to pro-
vide information to facilitate policymakers and community nursing management in their decision-making process for including MIM as a parenting support method in the national NCPH programme.

The aim of the study is to:
- Integrate appropriate theoretical perspectives to this community based health promotion programme for first time mothers with infants from birth to age 18 months,
- Determine final outcomes in relation to health whilst examining the contribution of social support and efforts by visiting mothers to empower first-time mothers in the first fifteen months of their child's life and
- Provide information and, where appropriate, give recommendations concerning the positioning of the programme in the public Infant health services.

Three questions will be answered to determine the quality and efficacy of the MIM programme.

1. Which theoretical concepts are appropriate for building a useful theoretical model, which explain the working elements of the MIM programme?
   Using MIM programme practice possible links with communication, nursing, social psychology and pedagogical theories were explored and identified. A theoretical model was developed with a view to explaining the working elements of the MIM programme. The results of linking MIM practice to theory are presented in chapter 4.

2. What are the effects of the MIM programme?
   A 15-month prospective cohort study was carried out with baseline and post-test questionnaires, which were answered by first-time mothers about themselves and their infant.

3. Under which conditions could the MIM programme work efficient and effective: The study looked at the ratio of numbers of mothers visiting to first-time mothers and to the ratio of number of visiting mothers to co-ordinators' full time equivalent working time.

A description of the practice of the MIM programme, an overview of previous (action) research activities, and a qualitative study on the interaction between visiting mothers and MIM co-ordinators are presented in chapter 2. A review of the literature on effective community based home intervention programmes' focusing on mothers and their infants are presented in chapter 3. Chapter 5 deals with the research design of this study, whilst chapter 6 presents the validity of the design and the instruments used. The results and the answers to questions 2 - 7 are presented in chapter 7, which includes the overall question on efficacy of the programme. The final chapter (8) contains a discussion, the conclusions and recommendations for future reference.
Chapter 2

Mothers informing mothers in practice

2.1 Introduction

This chapter gives a brief history of the development of the MIM programme, the problems the programme is addressing, the intended target groups, aim and objectives and a description of the stakeholders. It also gives an overview of some of the activities that were carried out as part of the programme.

2.1.1 History of MIM

The initiator of MIM was one of the directors of the former 'Kruisvereniging Breda', a community nursing association in the province of North-Brabant. His interest had been awakened after a visit to the Community Mothers Programme in Dublin in the late 80's. In his opinion the MIM programme could be the vehicle for implementing Health for All using modern health promotion theories, backed-up by the then recent Ottawa Declaration for Health Promotion. In 1990 plans were first made to adapt and further develop MIM to Dutch circumstances. Action research coincided with the development phase. A report on the development phase was published in 1995.

The first four locations started with the programme at different times: Breda 1992, Dordrecht November 1994, Sneek November 1995, and Uden September 1995. The community-nursing agencies share similar goals have similar staffing arrangements and the reliance on other community agencies is limited. Information used in this chapter is derived from data supplied by co-ordinators from August 1 1998 to 30th of June 2000, minutes of visiting mothers' group meetings, first-time mothers' evaluation forms, annual reports, policy documents, the SMIM (1) monitor report and personal communication. At present (2001) the programme is implemented in 13 locations and ten other locations have begun the preliminary process for implementation of the programme. In two of the 13 locations MIM is implemented jointly with a more general family support programme called 'Home Start'.

A registration project is started in 2000 to enable future monitoring of the programme on key indicators. Key indicators were the numbers of first-time and visiting mothers participating in the programme, their age, and education level, and whether these mothers and the grandmothers were born in the Netherlands. Other indicators were the number of co-ordinators and the number of their working hours. The results of this registration are based on nine locations. The registration counted 12 co-ordinators, 181 visiting mothers and 405 first-time mothers. The total number of hours spend by the co-ordinators is 174 hours per week. Each co-ordinator supports on average 15 visiting mothers. Visiting mothers support on average 2.23 first-time mothers each. Each home visit by the visiting mother last approximately 1.25 hours and she visits approximately 10 times per year as no visits are scheduled during the summer.

(1) SMIM stands for the MIM programme Co-operative. SMIM consists of senior management representatives of all organisations offering MIM as a service to the public.
holidays or Christmas. Via the visiting mother each co-ordinator reaches approximately 34 first-time mothers in on average 14.5 hours per week. This includes time for recruiting both visiting and first-time mothers; organising events, continuous education and the national periodically held co-ordinators support meetings.

The evaluation presented in this thesis took place in four well-established MIM locations in Breda (159.042), Dordrecht (119.462), Sneek (31.104) and Uden (39.384), whilst two locations were selected for controlling purposes: Almelo (66.080) and Den Bosch (128.009).49

2.1.2 Which problem is MIM addressing?
At the outset of the programme development problems were identified about the well baby clinic services: In the early 90s the well baby clinic consultation tended to concentrate on the babies' health and feeding problems rather than developmental matters. The reasons to establish the MIM programme were:
1 Signals from practice showed that first-time mothers have many questions about the development of their baby for which the community nurse has no time. Habekoté subsequently confirmed this signal.50
2 It was felt that the predominantly middle class community nurses experienced difficulty in reaching the predominantly working class mothers. Communication problems did hamper these mothers' access to health education. Habekoté (1995) and Caris (1997) confirmed this signal.50 51
3 Mothers were given information from many sources, but the result was that they experienced difficulty in making choices that they felt appropriate to their own circumstances.

It was asserted that the existing service was not effective in the area of parent support and improvement was necessary.

2.1.3 For whom is MIM?
MIM is available for all first-time mothers living in the catchment area of their local well baby clinic and it lasts eighteen months.52 However, special recruiting attention is given to families at risk. An accumulation of risk factors may place families at risk. Families at risk may be parents with migrant backgrounds, families without an adequate social support network, teenage mothers, and/or mothers who have experienced difficulty during or after their pregnancy in their own or their baby's health or development.

With MIM some extra attention is given to first-time parents. In the MIM programme a visiting mother visits a first-time mother in her home on a monthly basis and discusses information concerning the caring and rearing of her infant.1 They use a peer educational approach, reflecting on the information received from different sources such as the well baby clinic team members, girl friends, family members, or television, radio and magazines. The visits take place on average once a month, and the visiting mother stimulates the first-time mother in finding her own answers. They use their own experience, cheaply produced cartoons and a 'topic for discussion' checklist as tools to help them to discuss issues systematically. The cartoons show pen-pictures and situations for discussion in the areas of psychosocial development, cognitive development, language, physical development, play and safety. A discussion about the contents of a cartoon may act as a start for exploring the mother's attitude, knowledge or behaviour in relation to the advice she has received from different sources.

(2) The number in brackets denotes the population of that municipality.
2.1.4 Why developed?
MIM was developed to increase the effectiveness of health promoting activities by community nurses and has been developed as an integral part of the regular NPCH services for parents and infants aged 0 to 18 months.

2.1.5 Aim and objectives of the MIM programme
The general aim of the current MIM programme is similar as that of the NPCH programme from the 1990s. 'The promotion and safeguarding of a healthy physical, mental and social development of the population of pre-school children, starting from the parents' personal responsibility, by means of influencing the relevant health determinants, namely physical factors, health behaviour and relevant environmental factors, including the system of care itself'. A subsidiary objective from this general aim is 'to promote at an individual level, the personal competence and the responsibility of parents with regards to their children, if necessary by advancing their understanding of the health condition and potential development of their child and by increasing their competence.'

This legitimises the programme within the public infant health services.

MIM addresses the same topics as the regular NPCH services during the sessions of the well baby clinic, but these topics are discussed more from a pragmatic angle and are put in a context that is meaningful to the first-time mother. MIM supports the aim of enhancing the ability of women to cope with their new born baby, of encouraging them to adapt their behaviour after receiving health (educational) information, increasing the number of women breastfeeding, and making women feel in control of their lives. The main objective is focused on mothers by trying to reinforce their sense of self-esteem and thereby improving their ability to be self-supporting parents. The specific aims and objectives relate to first-time and visiting mothers and to community-nursing agencies organising the well baby clinics. The following objectives were found in MIM publications, but were not formally adopted by the SMIM. Objectives focusing on first-time mothers and their infants are geared to:
• Helping to decrease disadvantages for children living in disadvantaged areas and/or supporting families with social or cultural needs.
• Reaching parents in disadvantaged areas with the aim of increasing the effectiveness of the advisory services of the well baby clinic in relation to health promotion and caring for young children. All first-time mothers in these areas were offered the programme to prevent potential stigmatisation of key target groups.
• Increasing the self-confidence and problem solving capabilities of mothers to support their children's' development.

Focusing on visiting mothers the objective is to:
• Increasing the self-confidence of visiting mothers in such a way that it may lead to emancipation or education of these visiting mothers.

Focusing on the organisations the objective is to:
• Increasing the number of participants in follow-up activities such as the Mother's Centre, community playgroups, crèches and other neighbourhood activities.
• Making the clinic-members more aware of the individual needs of parents in such a way that they change their practice from giving general advice to more individualised advice answering the actual needs of those parents.
• Establishing a coherent network of childcare services to supporting parents in rearing and caring for their children.

The objectives point to different parties who share an interest and who are in a way responsibility for the MIM programme. They are the key stakeholders.

2.2 Stakeholders

Different groups are identified who have an interest (stake holding) in the programme. A stakeholder is defined as any person or group who has an interest in the programme to be evaluated, or in the results of the evaluation. The stakeholders in MIM are the first-time mothers and their infants, the visiting mothers, nurses, and the management layer of the community-nursing agency. National policy-makers, the developers of the programme and the researcher are also stakeholders. The interests of the various stakeholders are varied.

2.2.1 First-time mothers

A first-time mother would want a tailor made (effective and efficient) service suited to her and the baby’s need. She wants answers to the questions at the time of need, using different sources such as the consulting hours of the general practitioner, the well baby clinic, or those of the community nurse. The first-time mother comes from her own family, a group of people of various ages who are usually related by birth, marriage or adoption. Members of families usually feel that they have a special relationship with each other either by blood (knowing that they have the same ancestors), affection, duty (duty to a traditional sense of obligation) shared experiences and common interests. Some first-time mothers might be living in an extended family context (together with parents, siblings, or cousins), others form a nuclear family with partner, husband or friend, whilst an increasing number of young mothers form a one-parent family together with their baby. Single parenthood is not only in existence because the first-time mother is not ‘living together with a partner’, but it could also occur when the partner is absent from home due to illness, imprisonment, or work commitments (international lorry drivers, oil platforms, sales trips or foreign training courses).

2.2.2 Visiting mothers

This study is not focused on the visiting mothers. However, it is relevant to describe some of the activities of the visiting mothers as they are acting as change agents in the MIM programme. A change agent is an individual who influences clients’ innovation-decisions in a direction deemed desirable by the change agency; in this case the community nursing agency. They are prepared to support first-time mothers. They help them to use their own knowledge in order to reduce health or other risks, which may impair their baby development. The reason why visiting mothers are engaged in the programme are varied, from helping mothers to enjoy their baby and trusting their own intuition, to feeling useful again and raising self-esteem. The visiting mother will always enhance a positive confirmation of the physical, social and emotional care a mother gives to her infant. Information on behaviours identified for change by the two mothers in their discussions is documented on the ‘discussion paper’, which is used to guide their monthly discussions. These documents are not available for systematic perusal, as they are confidential and returned to the first-time mother after the visit.
2.2.3 Community nurses
The community nurses are interested because an effective service will give them bargaining power with purchasing agencies whilst their changing role in health promotion would legitimise priority setting for services directed to families in need. In their view the visiting mothers are well able to support the first-time mother with finding answers to simple, practical questions or problems. Nurses are also interested because the role of a co-ordinator is varied and entails different activities than those of a community nurse engaged in clinic duties. But not all nurses think that way. Some nurses think that the involvement of visiting mothers in health promotion could possibly undermine their professional expertise.

2.2.4 Senior management of community-nursing agencies
Senior management of community-nursing agencies wish for an effective and efficient service without loss of quality of care or extra financial input. The managers also hope that parents will find their way to future (paid) services which the organisations provide, such as seminars on dealing with obstinate toddlers, eating difficulties or sleep. All community-nursing agencies adhere to the same basic package as laid down in the NPCH programme that covers all NPCH services. Some freedom of choice is allowed as long as the goal of the collective is met and the activities as laid down in a national activity programme are adhered to.

2.2.5 Professional nursing organisation and national policy-makers
The professional community-nursing organisation and national policy-makers have shared concerns. For them to include the MIM programme as an activity in the NPCH programme it has to prove to be a viable, effective and efficient means to reach and support first-time mothers and adhere to the professional standards of nursing. Professional nursing and health promotion workers organisations are also instrumental in influencing the professional practice of nurses. Their role is to monitor the compliance with professional standards and adherence to quality of care legislation. National guidelines have been drawn-up for the preparation of visiting mothers, who wish to work in the programme and the work of the co-ordinators. These guidelines describe the steps to be taken to insure that standards are applied.

National policy-makers must make choices when planning and evaluating existing services and consider whether the programme or service gives value for money without long-term additional costs.

2.2.6 Financiers of the MIM programme
Two groups of financiers can be distinguished: (1) Those who funded the initial development and implementation phases of the programme and (2) local authorities and health insurers who fund the initial phase when agencies are implementing MIM in their own communities.

**Bernard van Leer Foundation**
Initial funding for the development of MIM came from the Bernard van Leer Foundation. It should be kept in mind that the initial motivation of the Van Leer Foundation was to adapt a community-based home visiting programme for the Netherlands. The Foundation had been funding similar programmes for a decade in Australia, The USA and Ireland. The Foundation accomplishes its objective through two interconnected strategies. The first is an international grant-making programme for developing appropriate approaches to early childhood care and development. The second strategy is sharing the accumulated wealth of knowledge and
know-how that is generated to informing and influencing policy and practice. One of the pre-requisites for aiding new projects is that the Foundation asks prospective grantees to sustain programmes structurally if and when they have shown their worth. From this perspective they could be seen as a very important stakeholder of the programme.

Local authorities and health insurers
A prerequisite of local authorities is often that subsidised programmes are part of a concerted action (as is described in the previous chapter). Health insurers are interested in effective services especially if it can enhance children’s health. Grants are usually given from one main source, either a health insurer or a local authority. The funding for the MIM programme in Breda and Uden comes from the regular public child health budget, although in Uden it has a project status, as decisions to sustain the programme must wait until after the evaluation results are published. The programme has also a project status in Dordrecht and Sneek as they have local authority funding. Finance in Sneek comes also from public child health funds.

Stakeholders are identified; the reason for developing the programme has been described. But how is the programme implemented? From process-evaluations it is known that the programme’s availability to all first-time mothers helps greatly in reaching the targeted groups and that much time is spend on recruiting mothers.

To conclude, it is now known who the stakeholders are and their interest in the programme. Several questions come to mind. Which activities are carried out and how is the programme implemented? How do first-time mothers enter the programme, what are the recruiting practices for first-time and visiting mothers and who does the recruiting? What other activities are needed to deliver the programme to the first-time mothers? In the next paragraph these questions are answered.

2.3 Overview of running the MIM programme

In this paragraph the recruitment of both visiting and first-time mothers, the activities of visiting mothers, the role and position of co-ordinators and preparations to implement the programme in an organisation are presented.

2.3.1 Recruitment
Recruiting first-time and visiting mothers is very time consuming. The co-ordinator is responsible for recruiting both types of mothers according to educational or other significant common background variables. She prepares the volunteers for their work and matches the first-time mothers with the visiting mothers. It is however, a continuous activity that takes up a lot of time. Approximately 95% of all mothers use the well baby clinics, a good place to start when contacting mothers for introduction to the programme.

Recruitment of first-time mothers
The colleagues of the public infant health team carry out the initial recruitment. They visit all mothers of new-born infants and introduce the programme. Usually insecure women and those claiming additional times at the clinic were referred to the MIM programme. Over time entrance criteria for the programme were developed between co-ordinators and clinic nurses. The mothers are assessed for inclusion in the programme using indicators such as:
• Extra time is needed to explain or impart information appropriately.
• Mother needs more support with finding her feet or a new routine, or likes to share and compare her experiences with someone who went through the same mill.
• Migrant mother has no social contacts.

After the initial contact is made the MIM co-ordinator makes contact in an attempt to recruit the first-time mother into the MIM programme.

The co-ordinators in Breda recruit both visiting and first-time mothers for their own geographical area. Forty-six women out of 154 births were recruited into the programme during the development of the cohort. The age of the infant at the time of entering the programme was not systematically documented, but according to the co-ordinators, the average age of the infant was between 4 weeks to two months with exceptions up to eight months for those infants who have spent time in an incubator. Thirty-four of these mothers had a migrant background. During the evaluation assessment period in Dordrecht 50 first-time mothers were recruited into the programme, two of whom were recruited before their confinement, 38 in the first two months after the birth of their infant and eight at three months. Four were recruited at respectively four (2), five (1) and ten months (1). Two of those children had spent time in an incubator. Ten were migrant women. In Sneek, the co-ordinator receives the names from colleagues and through self-referrals by first-time mothers after receiving personal recommendations from other mothers. In the evaluation assessment period 23 mothers were recruited into the programme. Timing of recruitment varied: four weeks (7), 2 months (6), three months (4), four months (3) five months and six months (1), whilst four of those infants had spent time in an incubator. Information on three infants was missing. In Uden, the evaluation assessment period Uden had 87 confinements of first-time mothers, between August 1st 1998 and March 31st 1999. Most babies were less than two months at recruitment.

Number of visiting mothers and their visits
A total of 144 visiting mothers participated in the programme between 1 August 1998 and 30th of June 2000. On June 30th 114 visiting mothers were working in the programme and they were visiting 225 first-time mothers. The overall ratio of visiting versus first-time mother is 1: 1.97.

Sixty-three visiting mothers, twelve of whom had followed the programme as a first-time mother, delivered the programme in Breda. Twenty-one of these mothers has also other working commitments. Some visiting mothers just started in the programme and others were finishing after a prolonged participation period. Seven visiting mothers and one father stopped with the programme due to finding paid employment, no time, moving house or serious illness. On June 30th there were 61 visiting mothers visiting 140 first-time mothers in Breda. The average number of mothers visited per visiting mother is 2.3.

Thirty-nine visiting mothers were active in Dordrecht, during the evaluation period. Eight visiting mothers stopped. On June 30th there were 25 visiting mothers visiting 39 first-time mothers. The average number of mothers visited per visiting mother in Dordrecht is 1.6. In Sneek there were 19 visiting mothers 12 of who were newly recruited and six ceased their participation. On June 30th 9 visiting mothers visited 14 first-time mothers: four visiting mothers visited only one first-time mother, whilst five visited two first-time mothers each. The average number of mothers visited per visiting mother in Sneek is 1.5. The total number of visiting
mothers active in the programme in Uden between August 31st 1998 and June 30th 2000 was 23, seven of whom started their activities during this period. On June 30th 2000 there were 19 visiting mothers (including the co-ordinator) who visited 32 first-time mothers. Seven of these 19 women had one first-time mother. Two mothers visited three first-time mothers each. Five mothers visited two first-time mothers. The average number of mothers visited per visiting mother in Uden is 1.7, see table 2.3.1.

<table>
<thead>
<tr>
<th>Location</th>
<th>Visiting mothers</th>
<th>First-time mothers</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>Breda</td>
<td>61</td>
<td>140</td>
<td>2.3</td>
</tr>
<tr>
<td>Dordrecht</td>
<td>25</td>
<td>39</td>
<td>1.6</td>
</tr>
<tr>
<td>Sneek</td>
<td>9</td>
<td>14</td>
<td>1.5</td>
</tr>
<tr>
<td>Uden</td>
<td>19</td>
<td>32</td>
<td>1.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>114</strong></td>
<td><strong>225</strong></td>
<td><strong>2.0</strong></td>
</tr>
</tbody>
</table>

*Table 2.3.1 Number of visiting and first-time mothers in four MIM locations*

**Limitations for recruiting mothers**

All co-ordinators indicated a maximum number of visiting mothers to support. This varied from 20 - 25 visiting mothers depending on the size of the geographical area served. This is important from an efficiency perspective, as the total number of first-time mothers served is dependent on the number of visiting mothers available and their willingness to take on several first-time mothers per month to visit.

Illness, holiday relief and vacancies are occurrences that greatly influence the effective running of the MIM programme in all four locations. Some co-ordinators have set a maximum to the number of visiting mothers to support due to time constraints. This has practical implications for the number of first-time mothers served. When the visiting mothers’ caseload is full no first-time mother is recruited until such time as a vacancy occurs. Finally, three new co-ordinators came into new posts during the development of the cohort. This meant that familiarisation processes were started, which resulted in a reduced number of first-time mothers recruited in Breda, Dordrecht and Sneek in the study period.

**An investigation in recruiting practices**

Broertjes et al (1998) investigated recruiting practices at four local MIM programmes attached to well baby clinics. No special fieldwork (survey) was carried out to elicit direct information from first-time mothers. They were therefore unable to distinguish social disadvantaged groups (social welfare payments, unemployment rate, housing circumstances) due to legislation on privacy. The investigators gave particular attention towards other ‘difficult to reach groups’ noted below such as mothers with a migrant background and teenagers. They identified seven types of a recruitment problem:

1. Recruitment via the postnatal maternity nursing service often resulted in mothers originally from Morocco and Turkey being underrepresented.
2. Mothers originally from Surinam and the Dutch Antilles are focused on their own network and are less receptive to ‘outside activities’.
3. There is a group of mothers where cultural and language difficulties hampered communication.
Recruitment by telephone does not always work, but once ‘in’ it is successful.

There are some persistent pre-conceived ideas about the programme. Some mothers think that the visiting mothers are ‘checking up’ on them on behalf of the community nurses. Teenage mothers were defensive and thought that the programme would give them instructions and rules on how to raise their babies.

‘The programme is not for me’ is a feeling that a group of mothers have. They felt that the programme is another way of giving unwanted advice.

The mother is interested, but unable to participate. This can be due to the withholding of permission from the partner or husband, or others in their immediate network put pressure on her not to participate in the programme (granny’s influence).

To tackle these problems three clusters of recommendations were posed: (1) MIM as a structural part of the NPCH programme to sustain the programme in future. (2) Make MIM a household name, and (3) personalise the recruitment procedure. The authors assert that the following outcomes need to be achieved: recruitment needs to be planned using the results of a target group analysis, use measurable outcomes and document all recruitment activities. It would be helpful if the composition of professionals and volunteers were a reflection of the population served. This may mean that human resource management act upon the current ethnic and cultural differences and take this into account when recruiting personnel and volunteers. To achieve making MIM a household name co-ordinators need to participate more fully in local networks in the target areas; giving the co-ordinator the opportunity to get to know the neighbourhoods intimately. Existing media channels should be used fully and structurally to publicise MIM regularly and although the MIM materials were not designed for recruiting, they are quite useful in getting the programme known. Finally, an assessment to investigate whether mothers perceive the contents and scope of the programme as helpful and materials in foreign languages were recommended.

Another finding of the study was that personal contact works best. This is also stated in the co-ordinators handbook. A personal letter could be sent before the call to announce her visit to alleviate nurses’ feelings concerning ‘attack techniques’ when paying unannounced home visits. Key persons from the community served should be used more fully, especially if they are also sharing the same cultural background or language with the members of the target groups. The visiting mothers could be asked to play their part in informing prospective participants about MIM. They are best suited to give an overview of what the programme entails and it would also mean giving an opportunity to make the programme not only community based, but also community driven.

As a result of these recommendations the co-ordinators received additional telephone interview technique training focused on recruitment by telephone. The role of the visiting mothers has been extended in so far that they are actively involved in recruitment practices.

2.3.2 Support for visiting mothers

Visiting mothers are supported by their co-ordinator in two ways: personal support meeting and monthly visiting-mothers’ group meeting. All visiting mothers are visited approximately once a month, excluding the summer months. The average number of group support meetings is nine per calendar year. Up to June 30th there were two annual dinners, and two annual parties organised in Breda for visiting mothers, coupled with two theme meetings: safety in and around the home (in co-operation with the fire department) and information on the Toy Library. In Dordrecht, eight group meetings for visiting mothers only and three-combined
meetings for both the inexperienced and visiting mothers were organised. There were also eight coffee mornings organised by the mothers themselves and four meetings to discuss special topics (organised by the co-ordinators). In Sneek, nine group support meetings for visiting mothers were organised. Four theme meetings were specifically organised dealing with safety, over-active children, nutrition and parenting skills. In Uden 16 group meetings were organised (for visiting mothers to exchange ideas, experiences and special request topics).

All organisations organised special events to mark an anniversary, Christmas and the start of the activities after the summer recess.

2.3.3 Nurses
Nurses, together with general practitioners and community paediatricians are in a key position to promote services for young children. They work in preventive child health care carrying out a range of health promotion activities. Community nurses provide a universal service to all families with pre-school children and they make home-visits. Consequently, the service is seen as non-stigmatising and socially acceptable by parents. The community nurse is best placed to identify 'children at risk' through their knowledge of the parents, although nowadays this term is often replaced with the term 'families at risk'. These young babies live in their own families and an accumulation of various risks is necessary to unsettle the process of child rearing. The nurse monitors the baby's development and the parents' ability to meet the baby's needs through well baby clinic, or home-visits. Together with social services, education and the neighbourhood communities, they institute programmes that teach, support and enhance parenting skills so those parents can take a more effective role with their children. All this is based on the premise that health professionals are respected experts in children's health and social development. It demands a shift of emphasis from reactive intervention to health promotion. The result may lead to the emergence of a 'parenting society' in which all citizens recognise their shared rights and responsibilities for giving care, control and development, particularly to the needy, among whom children are the most prominent.

Well baby clinic nurses involvement with MIM
The number of home visits made by the well baby clinic nurses is guided by the needs of the family, with some families needing more than the standard number of home visits. The involvement of the clinic nurses is varied.

In Breda a very limited number of clinic nurses are involved in a systematic way with the recruitment for MIM. Time spent on MIM by clinic nurses in Breda is during the four scheduled team meetings when the co-ordinators attend the regular staff meetings; presenting and discussing developments, exchange information about caseload, share experiences with matching the first-time and visiting mothers, or discussing special topics. Topics discussed were for instance, mothers' experiences of well baby clinic visits and mothers receiving occasional conflicting information from different members of the same team. In addressing these topics quality of care is enhanced since these discussions are instrumental in developing common ways of imparting standardised information on selected topics and on the workings of the programme. In Dordrecht the clinic nurses refer potential mothers to the programme. Periodically the MIM co-ordinator is invited to share information during staff meetings of well baby clinic nurses, whilst in Sneek the joint appointment of the MIM co-ordinators / well baby clinic nurses stimulates referrals. In Uden the involvement of clinic nurses is during their home visits to first-time mothers, during clinic hours they spend time in promoting the MIM programme and they are actively recruiting mothers for the programme. Average time spent
on MIM in this way is approximately five minutes at each home visit per clinic nurse, which is occasionally increased when the nurse feels the necessity.

2.3.4 Position and role of the MIM co-ordinator
In Breda and Dordrecht the MIM co-ordinators are solely working as co-ordinators in contrast with those in Uden and Sneek where the co-ordinators are also performing activities at the well baby clinics. The co-ordinators in Breda and Dordrecht are not members of the Public Infant Health team. The co-ordinator in Dordrecht is in close contact with all team members. In Sneek and Uden the co-ordinators are members of the regular Public Infant Health Team and work also as regular clinic nurses. They participate in proportion to their full time equivalent (Fte) of working hours in the regular staff meetings. They are engaged in NPCH activities but are considered to perform special duties, which exempt them from regular clinic duties when MIM is active. To avoid role confusion they did not make appointments with first-time mothers from their own MIM caseload. In their role as visiting mothers they adhere to the programme’s philosophy and activities, which is sharing information and professional referrals to others. As community nurses and members of the public health team their role is to give advice on requested topics in relation to health, nutrition or child development. A division of work has been established. One co-ordinator (works eight hours) does the initial intake visits and current affairs, the other (works four hours) does all the support and training sessions. Due to supportive colleagues recruitment is less time consuming since they supply the potential inexperienced and visiting mothers to the programme.

The role of community nurses works in well baby clinic teams changed according to the guideline set when working as a co-ordinator in MIM. The co-ordinator works according to health promotion principles. MIM co-ordinators have to place their trust in volunteers who befriend and support first-time mothers in making up their own mind whether to act upon advice from the members of the well baby clinic or others in such a way that it enhances the development of their babies. Instead of giving advice and information about the development of very young infants to first-time mothers the MIM co-ordinators are engaged in supporting and facilitating community networks of visiting mothers whilst also co-ordinating the programme. The assistance provided by the co-ordinators is best thought of as surrogate support, extending the support available in the client’s network and replacing that what is not available. The co-ordinator stimulates the work of the visiting mothers. Furthermore the different role of the co-ordinators working in public infant health due to the programme could legitimise their priority setting for services directed at families in need. They prepare and support new colleagues and act as a visiting mum (small caseload). According to the co-ordinators they usually visit first-time mothers in need, especially when medical or social problems are present. Other role changes are their public relation activities (local radio and television, their articles in local newspapers and presentations during nursing conferences and workshops). All co-ordinators assert that the MIM programme is vulnerable as their enthusiasm is affected when they feel under pressure, or experience difficulties.

Educational background of the co-ordinators
All co-ordinators possess a primary degree from a higher vocational training course; one trained as a pedagogue, all others are nurses. Some of the nurses also attained teaching qualifications or diplomas in management skills.
Matching both mothers

In common with the national guidelines all co-ordinators recruit and prepare first-time and visiting mothers for participating in the MIM programme. Matching mothers to one another is one of the most important tasks of the MIM co-ordinator. It is the foundation of a relationship of trust between the two mothers, which has to be sustained for the duration of the programme. All co-ordinators use the telephone as the most important recruitment tool. Personal contact are only indicated for two reasons (1) when telephone recruitment fails, (2), or when the mother extends an invitation for a home visit to explain the programme more fully. In three of the four agencies members of the regular public infant health team visit the potential MIM participant at home to discuss the possibilities of the programme as an integral part of their regular first home visit. If successful, the MIM co-ordinator comes to the home to assess the needs of the first-time mother. If the mother fulfils the criteria for the programme the identified needs are matched with the skills of the most appropriate visiting mother. After consent from the first-time mother her name and telephone number is given to the visiting mother so that she can make an appointment for her first programme visit.

Support for the MIM co-ordinators

Most co-ordinators attend the bi-monthly national support meetings for co-ordinators that were organised by the SMIM team (3). Within the assessment period, the SMIM team was instrumental in organising three one-day training sessions: effective use of the telephone for recruiting purposes; concentrating on the use of methods for organising meetings and organising support sessions for inexperienced and visiting mothers. The training sessions were organised as part of the bi-monthly support sessions. The development of a communication plan for recruitment purposes was another activity. Nearly all co-ordinators attended these sessions.

Interaction between visiting mothers and MIM co-ordinators

Kramer & Luth (1999) investigated the interactions between the visiting mothers and the MIM co-ordinators using a qualitative approach with the aim of gaining insight in their interaction processes. Using theories on inter-group relationships, peer education, social-identity and social attribution they formulated open questions for their interviews with the visiting mothers and co-ordinators. The questions related to the aspects of voluntary work, coaching, working and being a member of a group and peer education. All co-ordinators and 20 (five from each location) visiting mothers were involved. All interviews were transcribed, analysed and clustered into the four topics identified. Results show that visiting mothers and co-ordinators feel that they are complementary towards each other. They are positive about their contacts - professional and private - and feel that the many opportunities that exists for feedback in individual and group settings are important for contributing to the success of the MIM programme. The group sessions act as a valuable contribution to the individual support sessions. The co-ordinators however, feel they need far more support and call for help in the organising and supporting group sessions. The researchers concluded that the co-ordinators were tasks and personal support oriented. They pointed to the recommendations, tips and advice the mothers received from the co-ordinators during the support sessions. The co-ordinator acts as coach and facilitator at both group and personal level.

(3) The MIM-team consists of a health educationalist, a pedagogue and a public relation/marketing specialist who are employed or seconded to the Netherlands Institute for Care and Welfare. They are the support team for the co-ordinators and are instrumental for the nation-wide implementation of the programme.
2.3.5 Preparation to implement the programme

The directors of the community-nursing agencies offering MIM as a service to first-time mothers and the Netherlands Institute of Care and Welfare (in Dutch NIZW) have amalgamated themselves into SMIM, a national collaborative workgroup that meets approximately four to five times a year. The NIZW helped to develop the programme and would like MIM to be a success as measured by a nation-wide implementation of the programme. Together they provide the means for a strong presence of the programme in relation to policy and programmatic development at national level, including networking with other parenting programmes. They oversee the preparation of training materials and advocate the needs and benefits of the programme. Through the provision of a co-ordinating function at the NIZW they also assist prospective locations in securing resources for offering the programme in their local communities. SMIM enables the NIZW to produce a quarterly MIM Newsletter to all locations and other interesting agencies outlining the list of new resources, share insights on implementation experiences and updates on programme development throughout The Netherlands. Finally, SMIM is also the initiator of the current research undertaken; the members co-fund the fieldwork undertaken and they are represented in the advisory committee of the evaluation team.

Steps to implement the MIM programme

Several steps need to be taken before a decision is made to implement the MIM programme successfully in a new locality. The first step is a viability study to determine whether there is a need for the programme in the locality. Contacts with those working in the maternity services, general practitioners, midwife practices and hospital outpatient departments are made to inform them about the possible start of the programme in the locality. They are instrumental in reaching pregnant women to inform them about MIM. The second step is to determine the extra monies needed to cover initial expenses before the programme is implemented. Activities to be undertaken are an assessment of the size of the target population(s) and whether these women were in favour of such a new service. The third step is to match project plans with the community priorities, which need to be determined and the input from stakeholders obtained. The fourth step is reaching consensus with and engaging all stakeholders concerned about implementing the programme in the community. Finally, in the fifth step an overall local evaluation strategy needs to be developed and implemented using the co-ordinators handbook as a guide. For quality assurance purposes standards covering the utility of services, propriety, accuracy of information and feasibility of the activity need to be included in the local implementation strategy.

Visiting mother

For each first-time mother a visiting mother spends approximately 2.5 hours per month on visiting (1.5 hours), travel (30 minutes) and preparation (30 minutes). The monthly support visit by the co-ordinator will take approximately one hour per month for the inexperienced and approximately 30 minutes for the experienced volunteer. Some visiting mothers who are more than two years participating in the programme are contacted by phone (10 minutes); all others are visited at home. There are approximately seven to eight support meetings each lasting approximately 1.5 hours, excluding travelling time annually.

MIM Co-ordinators

In Breda three areas covering most of the city are involved in the programme, each with its own part-time co-ordinator: Haagse Beemden (a relatively new suburb, 19.2 hours), Breda
North 8 hours and 20 hours in more established areas of the city. This represents 1.27 Fte working hours nursing personnel. Dordrecht (20 hours) and Uden (18.5 hours) have each one co-ordinator whilst in Sneek two nurses spend between them 12 hours at the programme with an additional four hours only for emergencies. The number of hours involved in the research locations is similar to those in Oss, two settings in Amsterdam and Hengelo which are other MIM locations: respectively 18, 16 / 22 and 12 hours. However, during the study period the capacity of the co-ordinators was reduced in three of the four experimental nursing agencies, (see chapter 2).

**Human resources**
Each community-nursing agency participating in the study employs MIM co-ordinators. The work of all co-ordinators is seasonal in the sense that most of the work is done during school terms. During summer and school holiday activities were reduced due to home commitments of the visiting mothers themselves. The common SMIM guideline for a co-ordinator caseload gives a ratio of 25 mothers for each 0.5 full-time equivalent (Fte) of community nurse place and they deliver the programme to approximately 50 - 75 first-time mothers, (SMIM 1999). In common with the practice in SMIM the number of hours employed are taken as the basis of comparison. This means those 0.5Fte equals 18 hours.

**SMIM Support Team**
The SMIM team consists of a project leader (0.1 Fte) and two pedagogues respectively 0.75 (28 hours) and 0.5 Fte per week (16 hours a week) from a central office at the Netherlands Institute of Care and Welfare (NIZW). From March 2000 the Fte for the pedagogues reduced to twice 16 hours per week. The team is responsible for implementing the programme nation-wide, producing the MIM newsletter, public relations and supporting members and potential members of the SMIM co-operative. The project leader acts also as the secretary of the co-operative and as such is a member of the advisory committee of this research project.

**Material Resources**
Each first-time mother receives a full set of cartoons, which will be discussed during the programme’s duration. She also receives a report of the monthly meeting with the visiting mother. The cartoons and report forms are produced by the NIZW and sold at cost price, which is five guilders per mother. Miscellaneous costs cover the production of posters, information leaflets and the travel costs of the MIM co-ordinators.

The co-ordinators in Dordrecht, Sneek and Uden share their office with the colleagues of the well baby clinic. The co-ordinators in Breda were originally based in the same building close to the clinics they served, but they are now centrally located in one of the main offices in the city centre of Breda. The support meetings with the mothers are held in the home of one of the visiting mothers who each take turns to accommodate this event. The individual training and support sessions are also held in the home of the volunteer. Specially organised events are usually located in a syndicate room belonging to the organisation or in a medium sized conference room in a conference centre.

**Estimate and Actual Costs**
Estimated cost of the programme is approximately 60,000 guilders per year, although these figures vary between the agencies. The SMIM co-operative supplied the following information on estimated costs based on 18.5 hours of co-ordinators time. The 60,000 guilders break down
to 37.500 for the co-ordinator salary and expenses, 15.000 guilders for expenses paid to visiting (25) mothers, 500 guilders for materials used by the first-time mothers (50 - 75). Training and support activities, subscription for the SMIM Co-operative miscellaneous costs account for 2500, 2.000 and 2.500 guilders respectively.

**Actual Costs**

The initial funding for the development and implementation phases of the MIM project came from the Bernard van Leer Foundation. The last consolidation and implementation phase will cease in 2002. At that time the funding and maintenance of the programme needs to be fully met by the members of the SMIM co-operative.

Three broad criteria are often used to determine the success of a health promotion programme: efficacy, effectiveness and efficiency. Efficacy refers to the impact of the programme for those people who actually attended it. Effectiveness is the proportion of people intended to receive the programme who successfully changed as intended. The distinction between efficacy and effectiveness is seldom maintained in evaluation reports. As the MIM evaluation had a captive audience the outcomes presented are those of the programmes’ efficacy. The study did not address the efficiency of the programme, which is the unit cost of each person who actually attended the programme.

In *Breda* the finance for the MIM programme comes from the regular NPCH budget. ‘Leden Actief’ supplies the volunteers for which the nursing service pays an up front expense of 140 guilders per annum per volunteer. The visiting mothers invoice (monthly) the community-nursing agency for expenses incurred. The MIM volunteers claim expenses for travel costs (bus tickets, car journeys), the number of telephone calls made to each first-time mother visited and if necessary child care to a maximum of 25 guilders per month (a subsidised place in the agency’s own nursery). The cost incurred in 1998 - 1999 was not comparable with the other agencies as it incorporated also all overhead costs such as office space, depreciation of materials and other overhead expenses.

In *Dordrecht* the finance for the MIM programme comes from an annual municipal subsidy based on the pre-school education programme (‘voor-schoolse educatie’). The cost incurred in 1998 - 1999 was 53.572,37 guilders. This includes salaries, social welfare contributions (32.384.43), organisational costs (5.000 guilders), secretarial support (3.197.55), housing (3.000 guilders), 2.500 guilders membership of MIM co-operative, volunteer expenses (2.497 guilders), and project management (2.373,59). It also included a five-year anniversary (1.342,80), material costs (526,25 guilders), PR-activities (500 guilders) and continuing education activities (250 guilders).

In *Sneek* the MIM programme is subsidised by the municipality through their budget pre-school support programme. Unfortunately the actual costs for 1999 were difficult to obtain but the cost incurred in 2000 totalled 24.358,02 guilders, which is approximately 11.071,82 Euro. It included (in guilders) salary costs and social contributions (20.689,34), membership of the MIM Co-operative (2.500), travel expenses incurred by the volunteers (618,68) and PR-materials (4774,46).

In *Uden* the finance for the MIM programme comes from the regular NPCH budget. The cost incurred in 1998 - 1999 was 39.840,82 guilders, which includes salary and social contributions
2.4 Conclusions from practice

The conclusions from practice are presented under three headings: positioning of MIM in the community, ownership, influence and dissemination of the programme and topics to be addressed in the future.

Positioning MIM in the community
MIM is positioned within the public infant health services at the crossroads of health and social services. Through the co-ordinator the MIM programme links with health related services, social and child development and services in new housing estates and inner city communities. In some instances funding is obtained to stimulate close cooperation with others but no agency is involved with the programme in financial, organisational or practical terms. The co-ordinators participate in local professional service networks and receives occasionally a referral to the programme. Running the programme is very much a community nursing activity.

Ownership, influence and dissemination of the MIM programme
MIM has been developed with and for mothers, but the ownership of the programme lies in the hands of community nursing management. Comments on changes in practice made by visiting and first-time mothers are heeded on a practical level. Mothers have progressed within the programme as recruiting agents, are involved in the preparation of potential visiting mothers and have an active part in the PR-activities for the programme in efforts to increase the number of first-time mothers participating in the programme. The visiting mothers do not visit in their own neighbourhood for reasons of confidentiality. Their travelling time however, is short.

All procedures are documented and activities are laid down for co-ordinators and visiting mothers in a published handbook. Organisational and policy prerequisites are also included. This means that dissemination of the programme to other locations is possible.

Target groups
The investigation by Broertjes et al (1998) identified different target groups, but they could not provide information on the number of first-time mothers participating in the MIM programme. The evaluation in this thesis needs to provide information on educational level, health status and perceived social difficulties of first-time mothers and their infants to determine whether first-time mothers with health or social problems were using the MIM programme.

Topics to be addressed in the future
Considering the situation in practice and the limited number of mothers (N = 144) participating in the programme, (see 2.3) a careful conclusion is that the programme implementation could be improved. The number of first-time mothers reached is low. Reasons for this are varied: The co-ordinators are employed part-time and feel they cannot support more than 25 visiting mothers per 0.5 Fte. The visiting mothers are asked to visit up to four
First-time mothers per month, but they visit on average two first-time mothers per month. Steps need to be taken to improve the mother's participation: either the co-ordinator supports more visiting mothers, or the programme 'promote' experienced visiting mothers to run the programme with the co-ordinator acting as facilitator. It is imperative that each visiting mother visits 8 - 10 first-time mothers per month (which translates to one to two per week). Organisational and practical changes need to be made to enhance the programme's efficiency.

First-time mothers with different social and ethic backgrounds are participating, but not with the numbers as were envisaged by management of the SMIM co-operative. Migrant parents were identified as one of the target groups, together with teenage mothers and those with health or social problems. The programme is reaching some parents with migrant backgrounds and some teenagers. No qualified judgements on whether enough migrant or teenage mothers were reached can be given since the relevant objectives were not stated in a measurable manner. The material presented in this chapter highlights the fact that the programme's objectives were formulated in broad terms only (see page 31), without SMART driven criteria (Specific, Measurable, Achievable, Realistic and Time scale, (which must be stated)). For instance, 75% of teenage, lone or migrant first-time mothers or mothers / infants with an ailment or disability, living in the MIM catchment area and who passed the nurse's assessment for the MIM programme have started in the programme in 2002. This number could be used over time to monitor the annual number of births to first-timer mothers, those assessed and those participating in the programme.
Chapter 3

Review of international and national community-based parenting support programme

3.1 Introduction

In any new research project it is important to look at existing knowledge about evaluating a programme that is focused on health promotion and parenting support. The following paragraphs give an overview of some of these programmes. According to Vimpani et al (1996) approaches on a variety of models have been initiated and evaluated in the last ten years.70 These were a parent education model, a public health model, a social support model, a mental health model and an interaction attachment model. Overlaps among these models exist. For example, the public health model includes social support and parenting as programme components. There are two ways in which a community intervention programme could develop. There are scientifically based programmes and the so-called ‘grassroots’ programmes. The aims and objectives of grassroots programmes are usually based on daily occurrences and formulated somewhat vaguely. Compassionate persons or organisations in co-operation usually initiate them with the people concerned. In the next paragraphs a description of some international, scientifically based, programmes are presented. One Dutch grassroots programme ‘Home Start’ is evaluated in the Netherlands. This is described in paragraph 3.3.3.

Scientifically based programmes usually carry out an analysis of all appropriate and potential determinants that could influence the health status, behaviour and/or parenting skills of inexperienced parents. The programmes are geared to problem solving, using theoretical knowledge from different disciplines, such as epidemiology, social and developmental psychology, nursing, and education. There has also been a lot of interest in preventive intervention programmes that seek to mobilise informal resources, especially in working class communities. Programmes evaluated adhere to the same four principles:

- A preventive focus on pregnancy and infancy, offering education, social support, and information about appropriate services;
- Targeting low-income groups who are under-served by traditional health and social services due to geographic, cultural, economic or cognitive barriers;
- Multidisciplinary content, incorporating information about health, nutrition, child development and social services; and
- Implementation through personal contact with paraprofessional workers who are members of the community.71

3.2 Effective home visiting programmes

Olds and Kitzman (1993) reviewed the results of the experimental literature concerning the effectiveness of home visiting programmes in improving the lives of children and families.72
Their extensive review concentrated on randomised trials of prenatal and infancy home visiting programmes for socially disadvantaged women and children. They further focused on just those studies in which the effects of home visiting can be teased apart from effects of other sorts of services, (for example, medical care and child care). The review was comprehensive summarising results of 31 home visiting programmes. Some of those programmes were effective in improving women’s health-related behaviour during pregnancy, the birth weight and the length of gestation of babies born to smokers. They were also effective in parents’ interaction with their children, improving children’s developmental status and reducing the incidence of child abuse and neglect. Finally the programmes were effectively reducing childhood behavioural problems, hospital emergency department visits and hospitalisation for injuries. Other effects were reducing unintended subsequent pregnancies and increasing mothers’ participation in the work force. The more effective programmes employed nurses who began visiting during pregnancy, who visited frequently and long enough to establish a therapeutic alliance with families, and who addressed the systems of behaviour and psychosocial factors that influence maternal and child outcomes. They also targeted families at greater risks of health problems by virtue of the parents’ poverty and lack of personal and social resources.

Olds and Kitzman’s (1993) findings were based on the systematic comparison of programme features in the context of a single research design. They recommended research to determine the relative effectiveness of non-nurse visitors because of the limited number of nurses currently available to carry out such activities, and the rapid proliferation of paraprofessional home visiting programmes. The authors concluded that home visiting is a promising approach, but all too often the promise has not been clearly demonstrated. They argue that ‘these programmes have benefited some families but not others and have improved some outcomes and not others’.

They suggest that these differences in effectiveness may be the result of several characteristics of the home visiting programmes, including the comprehensiveness of purpose and goals, level of staffing, frequency of visits and the populations they are designed to serve. In general, they suggest that programmes, which are comprehensive in focus and serve families that are initially at elevated risk for poor outcomes are more likely to demonstrate success. ‘The evidence suggest that low-income, unmarried teenagers are particular responsive to these types of programmes’.

3.2.1 Reviews on structural aspects of some American and European Programmes
The same programmes reviewed by Olds & Kitzman (1993) were also reviewed from structural aspects with the aim of determining other important factors for implementing successful home visiting programmes. Some of these aspects are important when assessing the MIM programme: i.e. evidence-based home visiting, economic evaluation, improving programme implementation, programme staffing and cultural diversity.

Weiss (1993) suggests that programme effectiveness rest, in part, on the availability and quality within the community of other services for families as well as on the capacity of the families to connect with such. The evidence-based case for home visits is fairly strong but also conditional for several reasons. Weiss argues that conducting evaluations of home visiting programmes is challenging because there are relatively few with stringent experimental or quasi-experimental research design, so the base of high quality evidence is small.

Barnett (1993) in his economic evaluation of home visiting programmes, points to the fact that very few economic evaluations have been done of home visiting programmes.
results of an economic evaluation can help policy-makers allocate limited resources and help both programme planners and administrators improve their programme.

Gomby (1999) discusses the purpose of programme evaluation: improving programmes and in determining programme effects. Winning the battles of statistical significance, research rigour and family engagement is not the same as winning the war of policy or practical relevance. Gomby believes that policymakers and practitioners should consider the functional importance of programmes' results.

Wasik (1993) analysed some elements of staffing of any home visiting programme. The key to success in those programmes is the relationship developed between the visitor and the client. She traced the changing roles of home visitors over time and concluded that today’s home visitor need more skills, knowledge, and flexibility than ever before in order to tailor the services to the needs of families they serve. Employment decisions must be based on programme goals and population served, rather than on the possession of a particular educational degree. To create and maintain a high-quality programme, programme managers need to consider a range of issues, including the skills and qualities of home visitors; the preparatory and in-service needs of the home visitors, the supervision and support in addition to training after they have been recruited.

Finally, Slaughter-Defoe (1993) asserts that those planning home visiting programmes must pay great attention to the cultural context in which the services are delivered. She recommends that steps should be taken to ensure a culturally compatible programme. They should pay careful attention to the culture of the programme staff, with fostering positive attitudes and a realistic and clearly understood mission. Slaughter-Defoe argues that too often home visitors are used inappropriately to respond to vulnerable families in crisis or treatment mode.

The focus of these programmes is on supporting the family in its own home-environment, trying to bring about a change in that environment which can be expected to have a long term beneficial influence on the child’s potential. The philosophy underlying the programmes relates to the concept of health promotion, social psychology and early learning; that is, the process whereby individuals and communities are able to take more control over their own lives and health and the environmental factors that affect them. The programmes aim to empower adults in their role of parents and hope to lead to the prevention of injuries, child abuse and/or psychosocial problems in children caused by negative experiences in early childhood. International literature points to the possibilities of community based programmes. A short description and general reviews of some of these programmes is presented here. They come from the United States of America, United Kingdom and Ireland.

3.2.2 Prenatal / Early infancy project
The prenatal / early infancy project in New York was set up in the late 1970s to provide an enhanced programme of home visits to pregnant teenagers, single mothers and those who were unemployed or on welfare. The initial theoretical basis for the programme has been tested and refined while it was examined in a series of three randomised controlled trials in 1997. It describes the role that self-efficacy, human attachment and human ecology have played in shaping the content and clinical methods of the programme. The term 'human ecology' is based on the Bronfenbrenner ecological model, which is more fully presented in chapter 4.
The programme was designed to improve the outcomes of pregnancy, qualities of parental care giving (and associated child health and maternal outcomes) and maternal life-course development (such as helping mothers return to school, find work, and plan future pregnancies). The programme consists of nine visits in the antenatal period and continuing contact by the same midwife for up to two years after birth. She discussed health educational topics and gave emotional and practical support in preparing for labour and childcare. Help in tackling financial and social problems as they arose was given. Comparison between experimental group (receiving enhanced programme of visits) and controls (normal screening and care at clinics) showed that among unmarried women living in poverty, and those receiving systematic social support returned to school more rapidly after delivery, obtained more help with child care and had fewer pregnancies over the next four years. There were also fewer cases of child abuse among the women at greater risks. Heavier babies and fewer pre-term births were recorded among nurse-visited women who were under 17 years old and those who were smokers. There was also a general finding of better knowledge and use of community services by visited women, and fewer accidents among their children.

After 25 and 50 months the researchers concluded that the programme has enduring effects on certain aspects of parental care giving, safety of the home, and children’s use of the care system, but it may be necessary to extend the length of the programme for families at highest risk to produce lasting reductions in child abuse and neglect. Olds and colleagues (1997) found similar findings in a 15-year follow-up in. In 1998 Olds and Korfmacher reported on the maternal psychological characteristics as influences on home visitation contact. In the programme efforts were increased for those families most difficult to reach. When families were in crisis, the nurses were encouraged to visit more frequently. In Elmira (New York) 99 white and in Memphis (Tennessee) 207 predominately African American first-time mothers participated in an investigation that examined how women’s psychological characteristics influence their use of home visitation service. The women sense of control showed a relationship to home visitation, with the number of visits decreasing as sense of control increased. Phone contact showed a positive relationship with sense of control as did support from her partner.

Karoly et al (1998) found that the actual programme cost for the Elmira location of the Olds study was approximately 3000 dollar a year or 7500 for 2.5 year of service. These costs were recovered for low-SES families before the child reached 4 years of age. This means that cost savings to government and society far exceed the investment in the service.

3.2.3 The Child Survival / A fair Start for Children (CS/FS)
The CS/FS project (1992) was an initiative of the Ford Foundation grant programme, which started in the early 1980s. It addressed issues related to birth and child health and development among families who were poor and under-served by traditional human services. The projects were in Alabama, West Virginia, Southern Florida, Texas, serving marginalised and underprivileged families, and also recent Haitian, adolescent parents in several cities and residents of a crowded Dominican neighbourhood in New York. The goal of the effort was ‘to improve chances for the survival and healthy development of infants and young children in disadvantaged low-income families’. The CS/FS projects concluded that the mechanism that brings about change is the personal relationship, which participants establish with programme staff or with other participants. This relationship blends three basic elements:
1 Education (information sharing, demonstration, role modelling),
2 Practical assistance (help in emergencies, linkage to services, transportation or translation),
and
3 Social support (active listening, sharing of personal experiences, friendship).

In combination, and given time to mature in a trusting relationship, these three elements can not only increase knowledge of appropriate parenting behaviours (from how to manage a baby’s fever to ways of encouraging language development), but motivate the participants to apply that knowledge in concrete action. Social support and practical assistance are levers used to engage the parent’s attention and lay the foundation of confidence, trust, and involvement to support the hard work of behavioural change.  

3.2.4 The Child Development Programme
In the UK several experiments in home-based strategies to help parents be more self confident and skilful in their child’s development have been initiated. One of the largest initiatives has been Barker’s Child Development Programme (1988), directed from the University of Bristol. The programme uses specially trained health visitors in areas of deprivation to build up parents’ confidence, foster skills in language stimulation for their children, and encourage early educational development, better nutrition and preventive health care. Although initial evaluation by the project team has shown improvements in health and home environments for the children, no assessment has yet been made of the effects on the parents in the study. Vimpani et al (1996) is concerned that although the essence of the approach is couched in terms of empowerment, the programme may be patronising or victim-blaming if not carefully administered.

3.2.5 Community Mothers Programme, Dublin
In 1983, a radically different form of the Child Development Programme was pioneered in the Eastern Health Board in Dublin, Ireland. In comparison with the Child Development Programme it is culturally adapted fully to local circumstances in the greater Dublin area. The programme is developed with the help of groups of mothers who would have been considered as member of the target groups with a view to preventing possible patronising or victim blaming practices. Visiting mothers in areas of social and economic disadvantage were recruited and trained by Family Development Nurses to give support and encouragement to parents. The aims of the programme were to support parents, build confidence, self-esteem and develop parenting skills. They were given the title of Community Mothers and each was to support between five and fifteen first time parents. These Community Mothers were paid nominal expenses and would describe themselves as volunteers.

An evaluation using a randomised control trial design has been carried out and found that mothers in the intervention group reported greater feelings of self-esteem than those in the control group. They also had more positive feelings about their child’s first year. The study had several limitations. Given that there was no established methodology for evaluating such an approach, the researchers developed their own approach so that, according to Vimpani et al (1996), the reliability and validity may be questionable. Further, given the lack of resources for the data collection in the study, there was a lack of ‘blindness’ of the family development nurses who were required to administer the end of year questionnaire. This means that the nurses involved in the programme also knew who had participated or not. This may have impaired their objectivity and it could have influenced the nurses’ perception of the outcomes.
The programme is now part of the national Irish strategy to support parents. In an adapted version the programme is implemented in other areas of Ireland as the ‘Parent support programme’. No family development nurses are involved in recruiting the parents, but nurses do act as resources for the local organisers. The programmes are organised through local community groups with community activists as organisers. Funding comes from the regional health authority. The process evaluation by Powell (1998) found that the programme is not restricted to first-time parents. He asserts that each community-nursing agency engaged in these types of programmes needs to set a minimum guideline of one visiting mother to four first-time parents. He argues that these visiting mothers need to develop an expertise as visiting mothers for imparting different solutions found by participating mothers for particular problems. In practical terms this means that for every 25 visiting mothers at least 100 first-time mothers should be reached. In the locations under scrutiny local ownership of the programme, such as for instance, involving mothers in decision-making processes within the programme delivery or accepting the expertise of the visiting mothers by the local public health nurses took time to establish.

3.3 Dutch adaptations of preventive intervention programmes

There are many examples of support programmes for parents with children in The Netherlands. An overview of activities and relevant policies are described in Dutch in O + O = O²; a report on integrated local preventive policies and provision of educational, pedagogical and developmental support services for children and parents at risk. A very limited number of evaluations have been carried out in the Netherlands. The populations in some of these evaluations of early intervention programmes for infants and toddlers have been very small and dealt mainly with three early educational programmes and a social support programme. In the following paragraphs these three programmes ‘Instapje’, ‘Hordelopen’ and Home-Start are presented.

3.3.1 ‘Instapje’

‘Instapje’ is a programme focused on very young children of mothers of predominantly Surinam origin. The primary aim is to enhance the support the mother gives to her toddler, aged between 12 - 18 months. The visiting mothers come to the home of the parents to give systematic support in the education of their children. The aim is to increase the responsiveness of the mother to the needs of her young children and stimulate the child’s cognitive and social development. An evaluation of the implementation process was carried out commencing in 1992 with a pilot study and later (1994) in an effect study. Random assignment of experimental and control a group was not possible due to the use of different birth cohorts. The research design was post-test only. The control group was chosen for three reasons:
1. Potential learning effects the mothers may experience by answering a pre-test questionnaire.
2. Greater possibility of attrition of the mothers participating in the study over time.
3. Video registrations were planned to register the interaction between the individual mother and her child, which was met by strong objections from mothers involved. It was felt that a pre-test / post-test design would fail after the pre-test.

Seventy-five families participated in the research; thirty-eight in the control and thirty-seven in the experimental groups. Four variables were tested: quality of the support a mother gives
her child, the quality of the mother-child relationship, the developmental stage of the child and the competence the mother feels in rearing and caring for her child. These groups were comparable in age and length of time in the Netherlands. The researchers concluded that the programme had effects on supporting and enhancing a child’s development. These effects however, are not of immediate influence on the quality of the mother-child relationship, nor on the mother’s feeling of being competent in rearing and caring for the child. The researchers recommended that the duration of the programme should be extended by a few months. This was to enable and facilitate mothers in the enhancing of positive feelings towards parenting and at the same time stimulating a smooth transition towards a similar programme for parents of older children.

3.3.2 ‘Hordelopen’

Hordelopen is based on the best seller ‘Oei, ik groei’\(^\text{103}\). \(^\text{104}\) Van der Rijt-Plooij & Plooij (1996) proposed that all normally developed infants go through periods of disorganisation or regression in the emotional domain at the same ages. In the first fifteen months of life the authors identified 10 of such periods, lasting from one to six weeks. The periods are around week 5, 8, 12, 18, 26, 30, 36, 44, and 61 - 62. The book together with the developed sequence of twelve structured meetings tries to make the mothers aware of certain signals as precursors of a sudden developmental change in their infant or toddler. The aim is to stimulate transactional exchanges between mother and child. During the meetings normal development is discussed with the mothers of infants born in more or less the same month. They discover the normal different incremental steps that young children go through. The mothers share each other’s experiences and learn to look for signs in order to recognise the coming changes in advance in such a way that they can respond sensitively and responsively.

The evaluation started in 1993 after a long period overcoming problems with mothers agreeing to participate in the study. The target groups in the evaluation are young mothers with difficult parenting experiences in their own youth, single mums and mums who themselves were neglected or abused as a child. Authors based this choice on their research findings. They assumed that the women with negative experiences would not have a close physical contact with their babies, which in its turn could lead to temper tantrums in a one-year-old child. The population of the study was a very small sub-group of mothers with serious negative experiences during their childhood. Two groups of first-time mothers were formed, an experimental (31 pairs of mothers and children) and a control group (27 pairs of mothers and children) who all had a normal pregnancy. There were no significant background differences between the two groups (SES, age, nationality, ethnic background, and psychotherapy experiences).

Mothers with a drug dependency or who had delivered a premature baby were excluded from the study. All mothers spoke Dutch, although some were from migrant backgrounds. Validated Dutch instruments were used which were based on original international instruments. They included the Leenders Locus of Control scale (1984)\(^\text{105}\), the Infant and Child Questionnaire validated for Dutch use by Kohnstamm (1988 & 1989)\(^\text{106 107}\) and a General and Medical Questionnaire (1991) similar to the Child Health recording schedule used by members of the well baby clinic teams.\(^\text{108}\) The instruments cover elements that are included in well baby clinics and the MIM programme. The researchers concluded on the basis of their findings that the experiment was successful for mothers who had experienced difficulty when growing up. The mothers looked differently at their children, had an increased feeling of being ‘in control’ and based their own behaviour more appropriately on the child’s development and less on the
child's current behaviours. The children in the experimental group were freer in their behaviour towards others and were less anxious. However, there were no significant differences in attachment with the mother, or numbers of illness episodes between the two groups. The results of this evaluation cannot be generalised for an open population since it dealt with a very selective group of mothers. Since then the series of incremental steps in child development have been the focus of further research by Weerth (1998) in which she tried to validate and partly replicate the Plooij study. The researcher concluded that all infants apparently go through periods of 'difficult behaviour' that cannot be immediately attributed to internal or external factors.

3.3.3 Home Start
Home Start is geared to befriend parents, giving them practical help, friendship and support. It was originally a British grassroots programme that was adapted to suit Dutch customs and culture. The programme helps families with children less than six years of age in preventing serious problems from developing through social support, whilst helping to increase the parents' self esteem, self-confidence and enhance their social contacts. Hermanns (1997) evaluated the Dutch Home Start version. The evaluation used action research methods with the aim of describing and analysing the programme and linking the results with the characteristics and activities of the Home Start volunteers and the programme itself. Characteristics of the volunteers were also linked with the changes that the families made as a direct result of the intervention.

Results showed positive changes in problems and questions the parents encountered. The sample showed that the mothers were, relatively speaking, more from low educational background, single parents and/or working at home. In this regard the programme showed that it had reached its target populations. The mothers felt more competent and experienced more social support. Most of the explanations were however, related to the characteristics of the family itself. The volunteers with a similar background as the visited family (education, work-experience) were most effective. Due to the fact that the programme was developed as a classical grassroots programme there were serious difficulties experienced during the research process. There were lacunae in the data gathering and the original research methodology was adapted repeatedly. This was partly due to the fact that the programme was not fully implemented at the start of the fieldwork. The main recommendation of the researchers was to have the programme evaluated at a later stage with the aim of measuring the effects of the programme on child rearing skills over time.

The effects of the Home-Start programme have not yet been determined.

3.4 Comparability of these examples with MIM and research implications

In the next section some cultural implications and comparisons between Dutch and international programmes are presented. MIM is compared to these programmes and an important research implication is identified.

3.4.1 Cultural implications
It is important to note that the transferability of programmes from the United States to Europe, or indeed from one European country to the next may be complicated. The social circumstances and the physical environments in the two large countries (the United States
and Great Britain) are fundamentally different than those experienced in the Netherlands. In the USA more than 40 million people have no health insurance, and the health system is not primary health care based. In a recent WHO report the USA ranked last (13th) for low-birth weight percentages, for neonatal mortality and infant mortality and 11th for post neonatal mortality. There are also some cross-cultural differences identified. The USA and Great Britain have no low-threshold facility such as a well baby clinic for the general population. In the USA only a relatively small percentage of parents attends these clinics. The parents who do use them have often a poor educational history, are unemployed and/or are single parents, or the visits are a prerequisite for receiving support payments or care orders (sometimes coupled with parenting classes). The average socio-economic status of the participants was low. In the UK health visitors perform increasingly child protection duties rather than general health promotion activities.

In Ireland not all mothers from all walks of life visit the statutory based well baby clinics. On average only mothers of the poorer sections of society attend these clinics. For this reason the Irish government changed the role of the general practitioner recently through the General Practitioner System by requesting general practitioners to include well baby clinic activities during designated surgery hours. In this way the preventive health and curative care needs of the family are known and can be tailored to fulfil the needs of the individual family.

Unsolicited advice or information is often not appreciated. This is important in the light of the use of the well baby clinic services. It has implication for the recruitment of the first-time mothers and the delivery of the programme. In the UK or the USA the services do not have a low threshold, and often the programmes are part of a secondary prevention service (child protection). Community-based health promotion and parent support programmes such as MIM give first-time mothers opportunities to discuss daily occurrences with another mother. In this way health educational messages and other pertinent information in which the first-time mother is interested may be discussed and perhaps acted upon.

The Dutch intervention programmes presented deal only with pedagogical and early educational issues and/or supporting parents on the request of parents themselves. The different programmes are focused on parents with different needs. 'Instapje' is a pedagogical / educational programme whilst MIM focuses on promoting health and gives health related parenting support. Home Start is an example of a prevention programme that focused on social support to parents who may find difficulties in managing child rearing activities in combination with all the duties entailed in running a home. Other local services to support parents are provided by local crèches, child day-care centres, a toy library, the family resource centre, day fostering agency and/or a visiting mothers’ network.

The described studies deal with a combination of health and welfare issues. These studies were prospective studies with a random experimental design, or the studies had a pre-test/post-test design with an experimental and comparison group. Some of the US programmes evaluations had relatively large populations (between 200 - 650 mother and child pairs), which were representing the whole population served. Some did not. The studies were looking for effects on vaccination rate, nutritional status of mother and child, prevention of child abuse, mental health of the mothers and the appropriate use of facilities in their communities. A reoccurring theme was the empowerment of the women. Effects measured at the child level were the attainment of appropriate development, less (home) accidents, proper
nutritional intake and full vaccination according to the national guidelines. Although not studied in some of these international programmes, it is hoped that the children score better in school, have less psychological problems and act as responsible youngsters appropriate for their age. Useful topics for the MIM evaluation would be infant nutrition, maternal mental health, mother’s empowerment and use of community facilities. Prevention of child abuse is difficult to measure due to Dutch privacy legislation. Vaccination rates in the Netherlands are high but information on how the infant reacts to these inoculations could be useful to nurses.

MIM is quite similar to most of these programmes. It is community-based and compared to the Child Survival / A fair Start for Children programme carried out by volunteers who in turn are supported by professionals. All programmes, including the Prenatal / Early Infancy Project, use social support and empowerment as their main pillars. However, a question remains as to what are the essential elements of the MIM programme? To answer that question the theoretical building blocks need to be identified. In the next chapter the theoretical perspective of the MIM programme is explored.
Chapter 4

MIM in a theoretical perspective

4.1 Introduction

National policy is now geared to evaluate different sections of the package that covers the well baby clinic services. A drive to investigate the different components of the NPCH services was started in the late 80s. There was ongoing criticism and discussion about the lack of evidence-based health promotion endeavours, which had been carried out as part of the public preventive child health programme. Parental support activities are under scrutiny, whilst some critics are also asking the question whether parenting support should be included as an integral part of a public child health package. However, ongoing parenting support activities are almost impossible to evaluate using an experimental research design due to the nature of the activities, unless parents in the comparison group are restrained from using the service at all. The underlying assumption in MIM is that when the first-time mother learns new tasks successfully in relation to caring for a very young child she will feel competent and secure; in other words she has the power to control and direct her own life (self-efficacy). She learns this by discussing and reflecting on her experiences with another mother who also facilitates her in finding answers to often-practical questions. Critics of the MIM programme lament the fact that a research based approach was not adopted from the start, this would have ensured that the development and implementation of the programme was built on a sound empirical basis. No formal needs assessment study was carried out focusing on the then current perceptions and attitudes of first-time mothers in the community. The contents and information contained in the materials of the programme were however developed with the aid of both experienced and first-time mothers on topics they felt appropriate and necessary.

4.1.1 Why a theoretical framework?
MIM is a grass roots programme, but this does not mean that the ideas for the programme are without some theory. This chapter is to bring together different theories, which intuitively have contributed to the ongoing development of the programme. A theory describes a set of abstract phenomena and the relationships between them. In regard to these entities a theory describes, explains and may predict how these entities (as independent variables) will behave in relation to each other in similar or identical situations in the future.

There is an increasing understanding of how context factors influence human development coupled with the fact that there is a growing awareness of the importance of supporting parents, as shown in the number of support programmes focused on first-time mothers, see also chapter 3. Thus a number of theories presented in outline here will be employed to build a theoretical framework for the purpose of evaluation. The focus of attention in MIM is the communication between mothers as an instrument for exchanging knowledge and information. The communication is based on four interrelated principles: these are the principles of inter-
activity, flexibility, learning processes and transparency. These principles will be dealt with later. A theoretical framework will also focus the mind. Using that framework the data gathered can be categorised, analysed, integrated or judged in appropriate perspectives. This stage involves consideration of the established theoretical base that helps to explain behaviours and indicates potential strategies for changing behaviour. To evaluate a programme it is important to explain from which viewpoint this activity takes place.

To be able to evaluate and integrate information it is therefore necessary to create a model depicting the relationship between the different concepts. The aim of the model is to provide a theoretical framework for the evaluation, which covers the risk and protective factors. The objectives are to:

1. Develop an appropriate model, which explains the working success or otherwise of the programme.
2. Integrate appropriate theoretical perspectives as a basis for the programme.
3. Give direction towards the analysis used in the evaluation.

In the following paragraphs the building blocks used for developing a theoretical framework are presented and pertinent theories are identified.

4.1.2 Outline of theoretical building blocks

The following quotation met with a sense of instant recognition when the researcher was agonising over the boundaries of the theoretical framework. Bronfenbrenner (1979) argues for the use of an ecological model when health educational activities are developed: ‘whether parents can perform effectively in their child-rearing roles within the family depends on role demands, stresses and support emanating from other settings. Parents' evaluation of their own capacity to function, as well as their view of their child, is related to such external factors. Examples of these factors are flexibility of job schedules, adequacy of childcare arrangements, the presence of neighbours and friends who can help out in large and small emergencies, the quality of health and social services or neighbourhood safety. The availability of supportive settings is, in turn, a function of their existence and frequently in a given culture or sub-culture. This frequency can be enhanced by the adoption of public policies and practices that create additional settings and societal roles conducive to family life. A theoretical conception of the environment extending beyond the behaviour of individuals to encompass functional systems both within and between settings, systems that can also be modified and expanded, contrast sharply with prevailing research models. These established models typically employ a scientific lens that restricts, darkens, and even blinds the researcher’s vision of environmental obstacles and opportunities and the remarkable potential of human beings to respond constructively to an ecologically compatible milieu once it is made available. As a result, human capabilities and strengths tend to be underestimated’.

The MIM programme is build with different types of building blocks and philosophies, which will be discussed more fully in this chapter. These building blocks and philosophies are the PHC ‘Health for All’ movement (1986), the Ottawa charter (1986) and the Declaration for Nursing (1988). It is consistent with family-support programmes that seek to enhance the capacity of families in their child rearing roles by providing concrete, emotional and social. Van de Sande, (1995) presented the initially theoretical building blocks, which were sought from, Bowlby’s (1969) attachment theory, Sameroff & Fiese (1990) transactional model and Bandura’s (1972, 1992) social learning theory. Freire’s poverty theory (1972) and his thesis
on communicating with the disadvantaged influenced also the activities in MIM, according to Van de Sande (1995). Later viewpoints from nursing theorists, social psychology theory (the elaboration likelihood model of Petty & Cacioppo (1986) and Festinger’s social comparison (1954) were added. Rotters’ locus of control (1964) was introduced as a dimension of self-efficacy. However, mothers do not live in isolation, they live in a community and they are interacting with people. The boundary of the model is influenced by Bronfenbrenner’s human bio-ecological thoughts (1979). These building blocks and philosophies are presented in the next sections.

4.1.3 Building a theoretical framework and developing a model
Bronfenbrenner (1979) argues that children should be studied, wherever possible, in their natural ecology. He offered a re-conceptualisation of the child’s environment as a multi-layered set of nested and interconnecting systems all of which influence the developing child but with a varying degree of directness. He emphasises also the need to view the developing person as ‘a growing, dynamic entity that progressively moves into and restructures the environment in which it resides’, and his model provides a ready framework for examining the ecology of the infant. It is represented graphically as a series of concentric rings, surrounding the dyad of the infant and its mother. The rings are named in order as follows: micro-system, meso-system, exo-system and macro-system. It is intended to interpret the MIM process using Bronfenbrenner’s human bio-ecological theory and identifies the factors involved in MIM in accordance with this theory. This model seems appropriate as it stresses the position of the individual as a dynamically developing entity trying to get a grip on his or her environment, whilst giving recognition to that environment. That is what the MIM programme also tries to stimulate. The different theories are used as building blocks and put these tentatively in a model as shown in figure 4.1 using the terms macro, meso and micro-systems levels.

![Figure 4.1 Adapted from Bronfenbrenner (1979)](image-url)
In Bronfenbrenner's model, the outer ring (macro-system) consists of the culture-specific ideologies, attitudes and beliefs, which shape the culture’s practices in relation to children, and dictates the nature of its institutions. The macro system consists of institutions and settings not in direct contact with the child but which nevertheless exert an important influence upon the quality of the infant’s life. An important feature of the element of this system is whether or not they serve to support the parents of the infant or other key people in the child’s immediate social world (for example, daily carers in crèches). Health policy and the easy access measures to preventive services within the Dutch health care system are the main components of the macro-system. Pertinent policies governing Dutch community health and health promotion are however, dealt with in chapter 1.

The next ring in Bronfenbrenner’s model is the meso-system, which encompasses the interconnecting links between different elements in the micro-system, which is for example, between home and the well baby clinic. This layer can be interpreted as the connecting inner layer between Macro and Micro systems. The Meso system deals with the circumstances in the mother-infant dyad lives. It connects them with the well baby clinic team, the visiting mother and the social learning processes of themselves and others.

The Micro system deals with the transactional approach of the dyad of first-time mother and infant, the infants’ attachment to the mother and significant others and its determinant temperament, which greatly influences the attachment process.

4.2 Macro system

MIM is a method for parenting support within the well baby clinic setting and is as such part of the nursing domain. In this chapter information is presented on nursing as a profession, the relevant theoretical viewpoints and the link with health promotion. MIM is a constituent part of a prevention programme. Prevention however is working from a different perspective than health promotion. In the following paragraphs two theoretical building blocks are introduced: Views of Nursing and Health Promotion versus Prevention. The macro system is concluded by a short paragraph on the principles of communication.

4.2.1 Views of nursing

Nursing is a helping profession, with the goals of promoting, maintaining, and restoring health of individuals, families, groups, and communities and of facilitating self-help and client-environment interaction (mutual aid). Nursing encompasses primary health care, consultant liaison, educator advocate (empowerment), and care providing roles. Nursing studies, according to Fawcett (1989) encompass the wholeness of health because they recognise that people and their environments interact continuously. Nursing models are usually described as a type of conceptual model that applies a conceptual framework to the understanding of nursing and the guiding of nursing practice. Until recently the totality paradigm has been the dominant paradigm in nursing. It is one in which Man is a mechanistic organism who adapts to the environment and strives towards a state of wellbeing. It is grounded in natural and social science perspectives and has evolved from nursing’s close affinity with medicine science. The simultaneity paradigm operates from a completely different belief system. It sees Man as more than the sum of his parts, changing simultaneously with his environment. Man is viewed as a holistic and integrated organism inextricably bound to the experience of
his world. This view represents a break from the traditional natural and social sciences and reflects an essentially phenomenological and existential perspective. It seeks a way forward through new paradigm approaches such as philosophical existentialism and phenomenological scientific perspectives. There is merit in theoretical pluralism for nursing, rather than a single theory or model as earlier nursing theorists urged. In the next paragraph three nursing models are presented which are examples from these two paradigms: The models of King and Neuman represent the simultaneity and the Orem model the totality paradigm.

4.2.2 Three nursing theorists
Three separate nursing theoretical viewpoints are relevant to the development of MIM; King, Neuman and Orem have developed these viewpoints. They look at nursing from different perspectives, (see figure 4.2).

<table>
<thead>
<tr>
<th>Name</th>
<th>Main characteristics</th>
<th>Type of conceptual framework / model</th>
<th>Nursing</th>
</tr>
</thead>
</table>
| King  | Interpersonal, transcultural | System model                         | Goal centred:  
- To promote, maintain and restore people’s health, and provide care for the sick, the wounded and the dying.  
- To help people to maintain, recover and enhance their health in order to enable them to function adequately in their social roles. |
| Neuman| Interaction model     | System model                         | • Nursing focuses on the person as a whole, aiming primarily to achieve and maintain a patient’s stability.  
• Nursing activities can be subdivided into primary, secondary and tertiary prevention. |
| Orem  | Self-care deficits, independence | Humanistic model                     | • The model addresses in a clear and systematic way the nature of nursing and a framework for the delivery of nursing care.  
- It is presented as a mechanistic approach based on (1) supportive-educational, (2) partly compensatory and (3) wholly compensatory approaches. |

Figure 4.2 Viewpoints on Nursing as developed by King, Neuman and Orem
King (1986) developed an interpersonal, transcultural model of goal realisation. The model focuses on the interaction between nurse and individual is one of the key elements. This interaction is consistent with an open system approach. According to King there are three interactive systems essential to nursing: personal, interpersonal and social systems, which jointly determine goal achievement by way of perception, communication, interaction, and transaction. This means that in King’s view interaction is a process of perception and communication between an individual and the environment, expressed in goal-oriented verbal and non-verbal behaviour. Transactions can be regarded as an agreement, which in fact are well-aimed interactions that lead to goal realisation. For example, stress is a dynamic situation in which an individual interacts with the environment; information and energy are exchanged, enabling the individual to control the sources of stress. Stress can affect people’s perceptions and decrease rationality. After a nurse and, for instance, a first-time mother has become acquainted, it is important that they each verbalise and check their perceptions. Together they can try to determine the goals via communication and interaction. Less attention is given to either the biological influences or the holistic and phenomenological experiences of being human. The environment is perceived as a predominantly social one and the physical environment is considered only in terms of how it influences the social setting. Health is a dynamic state of well being. It provides a situation in which the individual can make maximal use of her own abilities in everyday life, and function adequately in her social roles. According to King, nursing is essentially a transactional relationship with the ultimate goal of health maintenance.

Communication is interaction. Transactions between a first-time mother and a nurse or a visiting mother all occur within the interpersonal system, with each participant playing her own unique role, contributing her own perception, and being unmistakably present as a person. The ultimate goal would not only be related to health of the first-time parents, but it would also relate to the goal of being able to do all that is necessary to care and help the infant in reaching its full potential. King’s viewpoint could be used as a theoretical basis for MIM from a nursing perspective.

Neuman (1989) developed the interaction model, based on research in the community for district nursing and psychiatric nursing. She considers individuals, groups (meaning the closer family circle in particular) and the community, from various perspectives. She sees them in a continuous interaction in dealing with stress in that environment. The environment plays a central role with both external and internal components that continuously influence the person. Neuman views nursing as a unique profession and at the same time considers her theory applicable to more than one professional group within health care. The individual is regarded as an ‘open system’ in which the components of stress and the reaction to stress play a major part. Neuman identifies three specific approaches: an individual, alone or assisted by the caregiver, can manage or cope with stress: (1) primary prevention (prevention of stress), (2) secondary prevention (fighting stress) and (3) tertiary prevention (re-implementing of primary prevention after the necessary secondary prevention has been successfully completed). Neuman’s model regards Man as a human being in a system consisting of physiological, psychological, socio-cultural and developmental factors.

Neuman’s viewpoint is that every human being has a unique, central or basic structure, which she calls ‘central core’, with the environment playing a central role is shared. At the same time the environment is influenced by the person, which results in the interaction that plays
such an important part in the model. In that sense it is like a transactional relationship where the maximum level of wellbeing is achieved if a person can satisfy all her needs. Neuman's assertion that the tertiary prevention re-implements the activities of primary prevention cannot be shared. Tertiary prevention measures helps to make life enjoyable within the boundaries of capabilities and circumstances. Neuman's viewpoint would not be suited as a theoretical basis for the MIM programme from a nursing perspective.

Orem self-care deficit model (1985) is an example of the totality paradigm. The central theme in Orem's conceptual model is the concept of self-care, and the notion of the self-care deficit, which is closely related to it. She asserts that nursing intervention is legitimate when an individual has a self-care deficit and is therefore insufficiently capable of providing the therapeutically required self-care. In essence, the nurse and the individual work together, the nurse always promoting and encouraging the individuals' involvement and maximum independence. Orem describes self-care as personally acquired and goal-oriented behaviour that focuses on the individual's own capacity to regulate herself and the environment in such a way that she stays alive, enjoys health and wellbeing, and contribute to her development. Self-care manifests itself as concrete behaviour: the complex care performed for and by oneself. Adults generally perform it, while ill people and children are to a certain extent dependent on supplementary care provided by others. Orem distinguishes three different nursing systems: (1) supportive - educative, (2) partly compensatory and (3) wholly compensatory. Orem's model views Man as a person exclusively in the context of self and self-care. The complexities of human experience and human action are not considered since Man is taken to be the sum of self-care needs or requisites. This also applies to her view of the environment as primarily a situation within which self-care or lack of self-care takes place.

To conclude, community nursing in the Netherlands has been greatly influenced by Orem's views as it fits-in with the individual way of living in the Netherlands. It is Orem's first system, supportive and educational, that is in play when nurses are engaged in health promotion activities. The model recognises health and illness, but again only in relation to self-care. Healthy people can and do meet their own self-care requirements. Health and illness are not addressed as separate conceptions in their own right, but are opposites on the same continuum. Neuman's views were developed for community and psychiatric nursing. It focuses on the whole person and looks to prevent stress. First-time mothers experience stress in the period immediately after confinement and usually it may take weeks or months to find a new routine to learn and carry out all the (new) tasks and feel competent. There is no link between her views and health promotion: it is very much focused on prevention. Examining King's views there is an opening to health promotion. King's model of goal realisation using her three interactive systems of personal, interpersonal and social systems which jointly determine the goal by way of perception, communication, interaction and transaction links in with social learning theories.

4.2.3 Prevention versus health promotion

Early intervention programmes and services are called upon to meet the needs of more and more children and their families. They provide services that are comprehensive, flexible and family focused. Promotion is defined as the enhancement and optimisation of positive functioning. Interventions focus on the acquisition of competence and capabilities that strengthen functioning and adaptive capability. The nurses working in public health are often influenced by the medical paradigm, which frequently defines prevention as the deterrence or
hindrance of a problem, disorder, or disease. Dunst et al however, argue that the use of prevention models for guiding practices of family resource programmes is inconsistent with the aim of strengthening family functioning. They argue that the use of promotion and enhancement models increase the likelihood that people will become more capable and competent as a result of intervention efforts, see figure 4.2.3.

<table>
<thead>
<tr>
<th>Prevention model</th>
<th>Health promotion model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deter, hinder or forestall the occurrence of problems or negative functioning</td>
<td>Enhance, bring about and optimise positive growth and functioning</td>
</tr>
<tr>
<td>Avoid or reduce the prevalence or incidence of negative outcomes</td>
<td>Facilitate competence by enhancing capabilities to strengthen functioning</td>
</tr>
<tr>
<td>Have a ‘protection’ orientation</td>
<td>Promote ‘mastery’ orientation</td>
</tr>
<tr>
<td>Deter occurrences of negative outcomes</td>
<td>Develop adaptive capabilities / competencies</td>
</tr>
<tr>
<td>Reactive</td>
<td>Proactive</td>
</tr>
<tr>
<td>Weakness-based</td>
<td>Strength-based</td>
</tr>
<tr>
<td>Assess: ‘Life-threatening’ factors</td>
<td>Promote: ‘self-efficacy’ appraisals</td>
</tr>
<tr>
<td>Stress prevention</td>
<td>Enhance psychological well-being</td>
</tr>
<tr>
<td>Avoid malfunctioning</td>
<td>Enhance adaptive functioning</td>
</tr>
<tr>
<td>Avert disease</td>
<td>Promote a sense of self-efficacy</td>
</tr>
</tbody>
</table>

Figure 4.2.3 Characteristics of prevention and health promotion models. Adapted from: Dunst et al., 1991, pp. 32-33.

The contrast shown in this figure is recognisable to Dutch nurses and explains somewhat the reason why health promotional activities by nurses sometimes fail to reach their potential as they use preventive measures to deliver health promotion messages. Recently, (2000) approaches in prevention programmes are adapted by using more health promotion methods to bring the messages across.  

Strengthening of social networks and social support is pivotal in a health promotion strategy. This necessitates a shift for nurses working as co-ordinators in MIM. They change their practice from the initial prevention approach to a more health promotion approach. Promotion efforts are strength-based because they assume all people have strengths or the capacity to become competent. In MIM it is not enough to make the mothers aware of the potential dangers and risks when caring for her infant. Rouwenhorst (1977) asserts that making persons aware of their own potential problem solving skills is a good stimulus for voluntary behavioural change. This assertion is incorporated into the MIM programme. The ultimate goal of MIM is to support parents in such a way that their children receive every chance of reaching their full potential.

Health promotion as defined in this study is based on the principles of the Ottawa Charter
where it is seen as ‘the process of enabling individuals (and communities) to increase control over the determinants of health and thereby improve their health.”  

Health promotion programmes often follow a three-step process of fostering awareness, influencing attitudes and identifying health behaviour alternatives. These steps are designed to help individuals make informed choices in changing their health behaviour. The goals are to optimise physical and mental health and improve the physical and social environment.  

There is a worldwide interest in model programmes in mental health promotion. These model programmes are considered to be important instruments for improving quality, social impact and cost-effectiveness of promotion and.  

The primary purpose of health promotion is to improve the health and well being of individuals, groups and communities, by influencing their behaviour and by making their environment conducive to health. However, ‘proving’ selected health outcomes that are solely contributed to the programme is impossible. What is possible is to examine the impact of nurses’ health educational messages to first-time mothers to those who were also in receipt of extra information that was delivered by the visiting mothers. In this way the role of communication comes to the fore: within health promotion communication techniques are used to discuss the health educational messages.

### 4.2.4 Communication

Interactive communication is the method used in MIM to discuss information. Five conditions need to be met for an interactive process to work: gain, reasonably compatibility, understanding, ease and transparent.  

The tools of MIM used by the nurses and visiting mothers can be categorised to belong under the macro system, whilst the interaction between mothers could be categorised under the meso system (self-help group). The learning process of the individual mother falls under the micro system.

The aim of communication in MIM is to share experiences to develop and use the necessary skills and knowledge to be able to care for an infant. An objective focused on first-time mothers is to reach a state where they have faith in their own capabilities and they have gained or enhanced their self-confidence and self-esteem in relation to parenting. They are able to direct their own life. The MIM programme uses two essential tools to communicate with the mothers; cheaply produced cartoons and a ‘discussion paper’. From the review of the international programmes and process evaluations it is perceived that the two mothers, first-time and visiting, constitute a small self-help group. Experimental knowledge, specialised information of a phenomenon based on first hand experience, is developed within self-help groups. The communication between these mothers is interactive because they are teasing out daily problems, looking at possibilities, discussing possible solutions, which the first-time mother would find appropriate. In a sense this is very flexible, because the solutions to the same problem experienced by different first-time mothers might also be very different. The information shared is transparent; both mothers know what they are talking about and share their experiences. The type of wisdom shared is concrete, specific, pragmatic, holistic and oriented to here-and-now action. Self-help groups develop, disseminate, and validate this type of knowledge, which can be distinguished from information relayed by professionals (e.g. nurses, etc.). The discussions themselves are learning processes for both mothers: each of them taking on the role of expert depending on the topic discussed.
4.3 Meso system

The next layer in Bronfenbrenner’s model (1979) is the meso-system, which encompasses the links between different elements from macro into the micro-system: between home and the national NPCH programme and the well baby clinic. The two components ‘nursing’ and ‘health promotion’ (based on communication and social psychology) link into the meso-system. Nursing’s viewpoints are important because they link-in to nursing practice. Often nurses work from a preventive perspective: preventing a disease or an unhealthy habit. The link between the meso system and the micro system are the interactions and transactions that influence the first-time mother when caring for her infant. Her attitudes and behaviour are often based on her own experiences, from growing up in her family, going to school or college, or life events that may have occurred. They colour her perceptions and expectations when looking after her own infant.

4.3.1 Nurses as practitioners
Orem’s model is very popular amongst Dutch nurses since it is taught in colleges that prepare student nurses. They are influenced by Orem’s views since the principles used suit their individualised practice. Dutch community nurses are engaged in ‘anticipatory counselling’, which means that they discuss parenting support topics in depth only at the explicit request of the mother. Under the anticipatory counselling ‘directive’ the nurse would in her interaction with a mother during a well baby clinic consultation, a home visit or a surgery visit, only mention the age-appropriate topics relating to the baby’s anticipated development over the coming few weeks. Possible discussion topics may vary.

4.3.2 Interactions between nurses and first-time Mothers
According to Habekoté (1995), mothers are usually interested in the physical condition of the child, nourishment, behaviour, sleeping and playing, whilst the nurse often brings up sleeping patterns, growth and nutrition. She asserts that the way in which the nurses discuss the topics with parents seldom meets with the established criteria for effective communication. These discussions are not based on a collaborative model, but on a diagnosis-prescriptive model. Dutch community nurses often try to persuade parents of the value of their advice and convince them during their encounters to act accordingly. Persuading people to change often involves changing attitudes.

Fishbein &Ajzen (1975), assert that attitude is a relatively simple construct that refers to a person’s preference or non-preference with respect to an object. It would appear that, in general, attitudes towards an object are primarily based upon one’s beliefs about it. The more one associated the object with positive characteristics, qualities, and attributes the more favourable are one’s attitude towards the object. People are very good predictors of their own behaviour and most people do not form intentions to perform behaviours that are beyond their abilities, or that they cannot carry out because of environmental constraints. They can however, overestimate their skills and abilities or may be unaware of environmental constraints.

When communication is carried out in a persuasive manner the parents may process the information in two different ways. The elaboration likelihood model from Petty & Cacioppo (1986) assumes that attitude change can be mediated by two different modes of communication processing. This process differs to the extent that individuals engaged in arguments
contained in the message accept or reject the position advocated in a communication. The first way entails active or systematic information processing, which involves careful thinking and elaborating and results in relatively resistant and durable attitude change. This may link in with the community nurse’s practice, which is focused on prevention, whilst the discussion between the two mothers gives an opportunity to discuss the information presented and to process the different arguments. The second way entails passive or heuristic processing, which means that the individuals rely more on cues such as credibility or likelihood of a source than on the quality of arguments, which could be in the case in the interaction between visiting and first-time mothers. This however, is also possible in the interaction with the nurse. She listens to what the first-time mothers asks, answers the question, but there is for the mother little time to process the information. The first-time mother may then rely on the nurse’s specific expertise. In practice both information processing will be used to come to decisions on what to do. Elaboration refers to the extent to which a person thinks about the issue-relevant arguments contained in the message rather than relying on processes that characterise the peripheral route to persuasion. Cialdini, Petty and Cacioppo (1981) argue that attitude change is more stable if persons are required to generate their own arguments. The mode of information processing used is assumed to depend on processing motivation and ability, which is what actually happens between the two mothers.

4.3.3 Interaction between nurses and visiting mothers
Kramer & Luth (1999) assert that the MIM programme start a process of internal attribution in nurses and visiting mothers, which the members of the SMIM development-team characterise as empowerment. Attribution approaches, asserts Eagly & Chaiken (1993), emphasise how people’s inferences about the cause of the communicators’ attitude statements affect their agreement with these statements. Motivated to understand others well enough to manage our social lives, we observe, analyse and explain their behaviour. The explanations we come up with are called attributions. The MIM co-ordinators and visiting mothers are using persuasion and interactive communication to communicate. Persuasion should be facilitated to the extent that people view the communicators’ message as conveying the ‘truth’ or reality about some issue and should be reserved to the extent that the message is attributed to factors that compromise its truth value. In MIM, however, the visiting mothers and co-ordinators in a participatory process review activities on a regular basis. The review of international programmes in chapter 2 shows that little are known about the interaction between professionals and volunteers.

In chapter 3 the description of the MIM practice tells us that co-ordinators and visiting mothers are interacting on a regular basis. This results occasionally in, for example, the development of a new cartoon or a more standardised approach to a problem. In health promotion an educational communication approach is often used to support individuals in learning new skills or applying new knowledge. In the following paragraphs some of the important factors influencing people are presented as it occurs in the interactions between first time and visiting mothers. These two mothers constitute a small peer-led self-help group.

4.3.4 Interaction between experienced and first-time Mothers
Parents need to feel confident about their abilities; assured that they are using the appropriate information and skills to do all the tasks involved. Before they actually look for information it is thought that mothers often consult others such as a girl friend, sister, mother, or grandmother. The product here is the sometimes instrumental, but often emotional,
informational help and support that the visiting mothers can provide. According to Rogers (1995) this could mean that effective communication is more likely when source and receiver have similar convictions or have a similar point of view. In modern language the visiting mother helps to decode the messages sent by nurses and social paediatricians to enable first-time mothers change those messages into meaningful actions.\textsuperscript{57}

There are only a few experimental studies available that deal with the evaluation of peer intervention programmes.\textsuperscript{143} The age of the peers was the common factor between source and receiver. In MIM the common factor amongst mothers is the fact that they both care for a young child. Modelling and peer-support has been described in other studies of self-help groups.\textsuperscript{144} It is the role of a change agent (the visiting mother) in supporting and facilitating a learning process that helps the client (first-time mother) in finding the answers to her own questions.\textsuperscript{66} Behaviour by example as shown by peers is well observed, better retained and learned. This accords with Festingers' social comparison theory (1954) and the work of Shaw & Constanzo (1970).\textsuperscript{123,145} The social comparison theory emphasises that individuals assess their attitude, abilities and emotions by comparing themselves with similar others. They do this especially in times when they are uncertain about themselves.

In the interaction between experienced and first-time mother there is no room for persuasive communication. The two mothers talk; discuss ways and means of doing something. This interaction is thus using a more educational approach, which includes role modelling. The educational approach supports first-time mothers in performing new basic skills when caring for their babies: from making bottles, changing nappies and feeding appropriate meals to ensuring a social and safe environment for their children to develop appropriately to their potential. Thus, the lesson learned is that information given needs to be individualised and appropriate to the particular needs expressed. In other words, information given should be tailor made to answer each clarified question. In this way a client (first-time mother) can judge this against the other information she has received. Experimental knowledge, specialised information of a phenomenon based on first hand experience, is developed within self-help groups. Stewart (1993) asserts that people can assimilate new knowledge better when peers present it because they can identify with someone who shares a common experience.\textsuperscript{146}

The visits are ideally based on equality, with the visiting mothers developing a relationship of empathy, trust, and mutual respect and integrity with the first-time mother.\textsuperscript{147} Through this relationship the visiting mother is able to help the parent develop an active role in the programme and increase her understanding of child development. The information and suggestions coupled with the shared experiences and encouragement from the visiting mother will help the first-time mother solve her own problems, thus ultimately increasing her independence.

4.3.5 Social Support
Social support is seen as a function of personal relations and is, in conventional terms, assistance given by laypersons who are part of one's social network, rather than by nurses. It tries to influence social and societal determinants that could have a buffering effect against adverse circumstances (such as having a baby with an ailment, handicap or disability, or being a lone or teenage parent, or being a mother of twins or a premature child).\textsuperscript{148} More specifically, it is emotional, instrumental, and informative with appraisal provided by family, friends, neighbours, colleagues and self-help mutual-aid groups. This support can have a positive or negative
influence on the psychological and physical well being of its recipients. Use is influenced by both individual and network variables. For example, the extent to which a young parent seeks and uses support may depend on perceptions of types and sources of help available, personal independence, satisfaction with support given in the past, and the number of friends and family members accessible and willing to provide support.

Social support has captured the attention of policy makers in the health and social services fields. Mutual aid and informal care are indispensable complements to the programmes provided by statutory social services and home care agencies. The assistance provided by MIM co-ordinators and visiting mothers are however, more than complementary. This type of social support is extending the support available in the client’s network and replacing, that which is not available. Without the help and emotional aid given by the community’s informal support systems, institutional resources would be overwhelmed, and indicators of health and wellbeing would decline precipitously. People who are low in perceived social support have poorer social skills and are not able to initiate or maintain relationships or communicate their needs.

4.3.6 Social learning, self-efficacy and locus of control

Bandura’s social learning theory (1992) is a general theory of behaviour that can be used to interpret behavioural change and cognitive change mechanisms in groups. According to social learning theory there are two major factors influencing the likelihood that a person engages in a given behaviour. First, similar to the concept of behavioural beliefs underlying the attitude in the theory of reasoned action, the person must believe that the benefits of performing the behaviour outweigh the costs. Second, and perhaps more important, the person must have a sense of personal agency, or self-efficacy, with regard to performing the behaviour. This means that the person must believe that she has the skills and ability necessary for performing the behaviour under a variety of circumstances. Social learning includes learning to ask questions, rather than looking for clear-cut answers from others. In MIM the first-time mothers’ problem is put in perspective by both mothers during the discussions and clarified before any solution is sought. A prerequisite for social learning is being able to change one’s capabilities, which can be traced to the term ‘locus of control’ of Rotter’s social leaning theory.

Rotter (1964) made the distinction between ‘internal’ and ‘external’ locus of control belief orientations: ‘internals’ are seen to believe that events are a consequence of their own actions and thereby under personal control. ‘Externals’, however, are seen to believe that events are unrelated to their actions and determined by factors beyond their personal control. People and their environment are both reciprocal determinants of each other. According to Leenders, (1984) the feeling of inability to get a grip on circumstances or events is related to low self-esteem and self-confidence. In this context the notion of the mother’s perception of being in control of events is relevant.

The main principle of the social learning theory is the likelihood of behaviour occurring in a given situation. It is a function of (1) the individual’s expectancy that the behaviour will lead to a particular reinforcement, and (2) the extent to which the reinforcement is valued. Norman & Bennett (1996) assert that the locus of control construct has similarities with other constructs including self-efficacy, personal competence and mastery. They are also of the opinion that there has been little work done on applying attribution theories to the prediction of health behaviours in healthy populations.
In MIM the visiting mother discusses the advice the first-time mothers have received from the staff of the well baby clinic. Sometimes the visiting mother will show how things can be done, for example on how to prepare a feeding bottle, or she would give information on how some other mothers solved a small problem. In other words, MIM helps in learning new behaviour relevant to caring for a newly born infant, and supports the first-time mother’s behaviour in consolidating that knowledge in a health-promoting manner. When first-time mothers believe in themselves they can predict that they will succeed. They will try harder, persist longer and they assume that negative feedback means the tasks are difficult for everyone and that they have to put in more effort. When the mothers do this, chances improve that they will succeed, and this provides positive feedback to enhance further their self-efficacy. In a sense, locus of control also relates to being encouraged to take responsibility for one’s own health through the adoption of ‘healthy behaviours’. Self-efficacy and locus of control can be seen as a building block for empowerment: self-efficacy as a manifestation of behaviour and locus of control as a personal characteristic. They often work in tandem. The result of social learning may explain empowerment and personal control, pertinent to social competence. It successfully integrates cognitive, behavioural, emotional, and environmental explanations of learning and behavioural changes.

4.4 Micro system

The infant is placed at the centre of the first of the nested systems, which Bronfenbrenner calls micro-system. It involves the infant’s face-to-face interactions with the important people in his/her life. By employing the human ecological model it is intended to use a transactional approach, which appears to apply in a number of scientific domains.

4.4.1 Transactional approach

Within a transactional approach the development of the child is seen as a product of the continuous dynamic interactions of the child and the caregiver, and the experiences provided by the family and the social context. There is a general consensus among researchers on child development and developmental psychopathology that child rearing is a transactional process. Within this process there is an ongoing interaction between children and parents characterised by mutual influencing each other’s development. An equal emphasis is placed on the effects of the child and the environment. In this way the experiences provided by the environment are not viewed as independent of the child. To explain this transactional process I have inserted a quotation from Sameroff & Fiese (1990) describing a series of events (transactions) on how developmental achievements are rarely sole consequences of immediate credentials:

>a complicated child birth may have made an otherwise calm mother somewhat anxious. The mother’s anxiety during the first months of the baby’s life may have caused her to be uncertain and inappropriate in the actions with the child. In response to such inconsistency, the infant may have developed some irregularities in feeding and sleeping patterns that give the appearance of a difficult temperament. This difficult temperament decreases the pleasure that the mother obtains from the child and so she tends to spend less time with the child. If adults are not actively interacting with the child, and especially speaking to the child, the child may not meet the norms for language development and may score poorly on pre-school language tests. Not only is the causal chain extended over time, but it is also embedded in an interpretative framework. The mother’s anxiety is based on an interpretation of the meaning of a com-
In other words the daily interaction between the first-time mother and her infant are very much influenced by events. Other factors also influence the first-time mother. They are environmental factors, attachment of the infant with its mother and temperament, which is an important factor for developing an attachment successfully.

4.4.2 Environmental factors and codes
Environmental factors are contained within a culture, the family and the individual parent. Developmental regulations at each of these levels are carried within codes: the cultural code, the family code and the individual code of the parent. These codes regulate cognitive and social-emotional development so that the child ultimately will be able to fill the role defined by society. The ingredients of the cultural code are the complex of characteristics that organise a society’s child rearing system and that incorporates elements of socialisation and education. These processes are embedded in sets of social controls and social supports. For example, ‘sweeping or dusting the floor’ by a toddler can be seen as enjoyable role-play by some parents, whilst others see it as training a young child towards helping out with household chores. Just as cultural codes regulate the fit between individuals and the social system, family codes organise individuals within the family system. They regulate development to produce members that fulfil a role within the family and ultimately are able to introduce new members into a shared system (through birth or marriage). Families have rituals that prescribe roles and dictate conduct within the family setting. There is evidence that parental behaviour is influenced by the family context. However, a parent is also influenced by the individual code. Each parent’s past participation in her own family’s coded interactions conditions an individualised interpretation of the cultural and family codes. Individual influences further condition each parent’s responses to his or her child. Having a baby is ultimately fulfilling for most women, but the early months can be very difficult. The popular image of motherhood, the picture of the perfect baby smiling up to you, is flawed. The reality is that being a new mother involves extensive work caring for the baby on top of the strain of sleepless nights and fitting-in all other types of work in and outside the home.

4.4.3 Attachment
From the moment a mother interacts with her infant an attachment between infant and mother is built and it is so commonplace that on first sight it seems banal. An infant is too much part of its immediate social environment. Disregarding the effect that he or she has on its carers and of the effect that their reaction in turn has on them is impossible. Parents and child operate within a system of mutuality where the behaviour of one produces effects on the other that in turn modify the behaviour of the first. There are a variety of theoretical positions on the origins of infant-parent attachment, by far the most influential has been that developed by John Bowlby (1988) and extended by Ainsworth (1978). This author defines an attachment as a specific, enduring affectionate tie formed between one person and another. Attachment behaviour includes preferential attention, touching, clinging, smiling, calling for and crying in the absence of the specific individual or smiling at her or his presence. It is commonly noticed in infants from the second half of the first year. Attachment behaviour serves to maximise closeness to the mother and to elicit a reaction from her. It increases the likelihood that a vulnerable or distressed infant can obtain help, and helps to ensure that the infant develops a secure base - a reliable, specific individual whose attention and affection can
be depended upon as one begins to explore the wider environment. Importantly, for Bowlby, the secure base of a stable attachment is crucial to a child's wellbeing and developmental prospects. Studies of infants and parents in diverse social systems around the world confirm that attachment is a normative development, which occurs in almost all children within a similar age-span. Van den Boom (1988) concluded in her study that infant irritability (negative emotionality) has an important negative effect on the infants' attachment with his mother. An irritable baby is often a 'difficult baby' and this difficulty could perhaps be used a a predictive factor for problematic behaviour at an older age.

There are three main classifications of attachment relationships based on a standardised sequence of brief separations and reunions between mother and infant, involving also an adult 'stranger' unfamiliar to the child. The infant's behaviour in this situation reflects an internalised regulatory pattern based on expectations derived from the history of the parent-child interaction. Infants whose attachment relationships are categorised as 'secure' show freely exploratory behaviour with the mother present, are happy to see her after a brief separation, and actively seek comfort from her when distressed, showing clear preference for her over the stranger. The 'anxious' category tend to show anxiety even when the mother is present, become intensely distressed when separated and are ambivalent when reunited with the mother. 'Avoidant' infants rarely cry when separated from their mothers and avoid the mother when reunited. Securely attached infants are also described as more co-operative and less angry then either of the other two categories. The family is the primary social context with the mother often as the infant's primary carer. However, research has shown that eighteen-month-old infants formed multiple attachments. Grandparents, siblings, neighbours and above all fathers were singled out. In an overview by Atwool (1999) it is suggested that attachment problems have impacts on explorative behaviour and on learning, on developing behavioural problems, and on social competence with peers and adults in school.

An accumulation of various risk problems is necessary to unsettle the process of child rearing. Some of these risks are maternal mental health problems, a lack of spontaneously positive interaction in infancy, low occupational status of the head of the household, lack of family support, low levels of maternal education, disadvantaged minority status, stressful life events, living in inadequate housing conditions and single parenthood. Children exposed to multiple risk factors are more likely to have problems in later life. These risk factors include according to Hermanns:

1. Risk characteristics in children: difficult temperament, poor health, lack of competence or social skills and being subjected to maltreatment or neglect;
2. Risk characteristics in families: exaggerated parental expectations, inadequate social and child-rearing skills, psychological or psychiatric problem suffered by one of the parents, negative experience of parenthood and/or limited bonding capabilities, tension between parents;
3. Risk characteristics in a social environment: isolation and lack of social support, tension at work, low level of education, low income, poor housing - lack of space -, unemployment and social underprivileged (discrimination).

Research focused on the concept of resilience attempts to identify those factors, which enable some children to achieve positive outcomes in the face of adversity. Three central factors are identified: (1) The characteristics of the child including temperament, high self-esteem and
internal locus of control and autonomy; (2) The presence of a supportive family environment; (3) A supportive person or agency in the environment. Attachment is central to all these factors.

After an extensive empirical study on caring and rearing children in the Netherlands, Rispens, Hermanns and Meeus (1996) concluded that the average Dutch parents are supportive and sensitive to the behaviour and needs of their children. They exert predominantly an authoritative style of controlling the behaviour of children, and only a minority of families is characterised as chaotic or strict authoritarian parenting. In most situations, even when they are not specifically trained or professionally guided, parents seem to find the right answers for the developmental questions about their child, and most children are able to make good use of a wide variety of child rearing behaviours for their own development.

4.5 Implications for research

MIM is a method used in the nursing domain of the national NPCH programme that focuses on parenting support and using a health promotional approach. By investigating MIM there is an opportunity to investigate and compare the findings of the evaluation with those of the standard parenting support activities. This will provide information on the effects of the standard parenting support services as offered in the six participating community-nursing agencies. Using a human ecological model could be a useful way of depicting the various aspects of MIM and the socio-economic circumstances in which modern parents rear their children. It identifies variables important to include in the framework such as the socio-economic circumstances and supportive network of the mothers, but also the availability of health and social services in the neighbourhood. We know that the MIM programme is imbedded in some of those services, which is important for sustaining the activity and giving security to participating mothers. The quotation from Sameroff & Fiese (1990) also points at the difficulties of trying to fit theory into practice, but since MIM was developed from practice a daunting task now begins to try to explain how practice can fit into theory!

MIM is positioned within nursing practice as a method to deliver parenting support activities. From viewing Dutch community nursing practice it seems likely that a combination between King’s model of goal realisation using her three interactive systems and Orem’s self-care concept could complement each other. Kings’ interactive systems (personal, interpersonal and social systems) jointly determine the goal by way of perception (from first-time mother and the nurse) communication, interaction and transaction. Interaction and transaction are also important phenomena seen in the relationship between first-time mothers and their infants, between the relationship of the first-time and visiting mothers and the relationship between the MIM co-ordinators and the visiting mothers. Interaction and transaction processes also link-in with Bandura’s social learning theory and Festinger’s social comparison theory. Orem’s self-care concept is something that fits-in with the individualised way of living in the Netherlands. Unsolicited information or advice is not always appreciated. Habbekoté asserts that community nurses in her study communicated topics that they found important for child development rather than adapting the information in line with the questions of the mothers.

In MIM there is no place or use for a persuasive method in trying to convince first-time mothers to show certain behaviours. The information exchange is instead arranged more as an
interactive approach between peers. It would however, be useful to examine whether the mothers follow the advice of nurses and others working in the Dutch well baby clinic. If not, it is relevant to know whether this is due to the lack of intention, the absence of skills and abilities, or to the presence of environmental constraints.

All mothers receive their information from different channels, some are formal messages based on science, from books, journals or health professionals, others come from very practical down to earth neighbours who base their information purely on experimental learning results (their practice in child rearing). When both types of messages are similar in content and outcome it is likely that the first-time mother will accept the information. During MIM’s development community development principles of consultation, participation, communication and sustainability were central and deliberately incorporated into practice to build up the level of local support for the project.

In the previous chapters theory and practice and pertinent policies were identified. Lessons were learned from evaluations of similar programmes from different cultural settings. In the next chapter the research design and instruments used in the evaluation are presented to determine outcomes chosen to be relevant for decision-makers. The influence of mediating and moderating factors on the outcomes are also taken into account, as they are necessary to determine the mechanism for action of the MIM programme.

Communication, different types of social support and problem solving / empowerment are used in the evaluation as possible mediating factors. These mediating factors may influence the effects on maternal and child health and some of the behavioural indicators mentioned in the next chapter. The influence of intrinsic factors such as age, perceived temperament, or sex has been categorised under the term moderating factors. The design of the study is presented in the next chapter.
Chapter 5

Research design and instruments

5.1 Introduction

As has been discussed in the previous chapters, MIM is theoretically consistent with family-support programmes that seek to enhance the capacity of families in their child rearing roles by providing concrete, emotional and social support. It is carried out as part of the NPCH services and is an example of an activity mentioned in the National Public Health Programme for Children (0 to school-going) as a possible method for providing 'health promotion / parent supporting services' by community-nursing agencies. On face value the MIM programme fulfills many of the prerequisites for 'good practices in NPCH' that are mentioned in chapter 1. It is a community-based intervention; developed with and for the people it serves. The organisation and content of the MIM programme cover the four groups of determinants influencing health that are mentioned in both international and national policies: physical factors, health behaviour, social and physical environment and the health care system itself. MIM deals with promoting health, social support, good nutrition and child-rearing skills. First-time mothers get the opportunity to discuss information in a way that is meaningful to them at a time when it is most appropriate.

This chapter describes the research questions, the instruments to be used in the evaluation and the research design. The instruments found were used in recent studies, or were part of an information-gathered routine used by professionals in the community-nursing agencies. Reliability and validity of the instruments found in this study are described in chapter 6.

This study aims to evaluate the achievements of the MIM-programme. The programme is carried out in a field setting, in which it is difficult to exercise control for extraneous factors. There are therefore several problems related to studying the effectiveness of a community-based health promotion intervention. The multi-factoral nature of health means also that the programme should be evaluated in terms of the totality of effects it is likely to have. That is difficult. Studies of home visitation and health promotion activities early in the life cycle have focused on programme outcomes; does the intervention produce the desired effects for the mother and infant serviced? The effects of an evaluation study is often interpreted in conjunction with process evaluation outcomes, which would reduce the possibility of a type III error, i.e. to conclude that the programme was ineffective through in fact the programme was never really implemented as designed. In the light of the current trend in promoting 'evidence based public health' in Dutch health policies, it is important to

- Examine measurable variables related to (mental) health.
- Identify possibilities for the reduction of inequalities of health between groups, and
- Establish whether the defined target groups are actually reached.
5.2 Research questions

Choosing activities to evaluate is difficult; especially when the time frame allocated is from the infants' birth to 18 months as this is the infancy period covered in the well baby clinics. It was therefore necessary to look for dependent variables that were measurable in the short-term. Long-term effects found by other authors and described in chapter 3 could be the objects for further investigations at a future date.

Outcome, mediating and moderating factors

This study makes a distinction between outcome, mediating and moderating factors. The outcome factors are related to maternal/infant health, and maternal/infant behaviours. The study aims to measure possible changes in these (health and behaviour) over time. The mediating factors are outside factors, such as social support, and problem-solving capacity/empowerment, as stated in chapter 4. They influence the outcome factors. The programme could not influence the moderating factors, as they are intrinsic to the mother or child (age, gender, and education etceteras). They are included in the study because these factors may have an independent influence on the effects of the MIM programme or on mediating and outcome factors (interaction effect).

It is expected that MIM-mothers in comparison with non-MIM mothers score better on four short-term outcome factors. These factors are used as the independent factor to determine the outcome, whilst the factors that mediate (those influencing the outcome factor) are entered as dependent variables. Four outcome indicators are used:

1. Maternal and infant health indicators (maternal perception of maternal and infant general health and maternal mental health).
2. Maternal/behaviour (increased duration of breastfeeding, increased cup use, infants' intake of energy and macronutrients according to national guidelines and vaccinations uptake).
4. Maternal satisfaction with the well baby clinic.

It is expected that these outcome factors be mediated by social support, problem solving capacity and maternal perception of infant temperament. Background variables were collected (demographic variables), together with data on the pregnancy, confinement and the post-partum period. This type of information has been categorised in the study as moderating variables.

Maternal perception on general and mental health is an important determinant for parenting, which is influenced by social support interactions. Soliciting social support itself may be influenced by the mothers' perception as to how she views her world. For instance a first-time mother with an internal locus of control perspective will feel more in control and will be more likely actively look for information, discussion topics relating to parenting or find answers to questions than a first-time mother with an external locus of control. Social interactions also influence feelings of competence with parenting as mothers compare their actions with those of others. Maternal perception of the infant's temperament is also a factor to include as it influences the interaction between mother and child. Nutrition and feeding practices are important to mothers in the first year of her infant's life. Different professionals (pedagogues, nurses, physicians and policy-makers) view the development of a secure envi-
environment for the attachment process as important. The moderating variables consist of the maternal and infant characteristics and pre-delivery risk factors. The following research questions were formulated:

5.2.1 Maternal / infant health outcomes
1. Are there differences in perception of maternal general health between MIM-mothers (experimental group) and non-MIM mothers in the two control groups?
2. Are there differences in perception of maternal mental health between MIM-mothers (experimental group) and non-MIM mothers in the two control groups?
3. Are there differences in maternal perception of infant health between MIM-mothers (experimental group) and non-MIM mothers in the two control groups?
4. Are there differences between infants in MIM (experimental group) and the two control groups respectively in receiving all DKTP and BMR inoculations as scheduled in the national vaccination programme?

5.2.2 Maternal / infant behaviour
5. Do MIM-mothers who started breastfeeding their baby after birth continue breastfeeding significantly longer than the mothers do in the two control groups?
6. Are infants aged approximately ten months eating meals according to the recommended guidelines of the well baby clinic and the National Nutrition Centre?
7. Is the fat consumption of participating mothers similar to the national recommendation for fat consumption for women in the Netherlands?
8. Are there differences to detect between MIM-mothers and non-MIM mothers in changing from a feeding bottle to a drinking-cup in accordance with the appropriate age guideline (approximately 10 months)?
9. Are there differences to detect in experiencing social support between MIM-mothers and non-MIM mothers in the two control groups?
10. Are there differences in experiencing feelings of locus of control between MIM (experimental group) and non-MIM mothers in the control groups?

5.2.3 Moderating variables
11. Does the MIM programme reach the proposed target groups (teenagers, migrant women and women at risk as defined in chapter 3)?
12. Has the intervention the potential to reduce differences in health across different socio-economic groups? (vaccinations, maternal and infant health as perceived by the mother). If this is so,
13. Are these differences less pronounced in the MIM than in the non-MIM groups of mothers?
14. Do moderating variables actually mediate between the intervention and outcome variables?
5.3 Study design

The study design needs to reflect the MIM programme itself. In line with Nutbeam's (1998) recommendations an evaluation design was developed using a diverse range of data and information sources. This data and information could provide more illuminating, relevant and sensitive evidence of effects than a single ‘definitive’ study. To evaluate the efficacy of the programme an experimental design would have been first choice. However, circumstances beyond our control prevented that. The community-nursing agencies could not change their MIM recruiting practices for the evaluation study. The alternative was a quasi-experimental design employing a cohort divided into one experimental, and two control groups: the mothers in the experimental group participated in the MIM programme and attended their local well baby clinic. Control I consisted of mothers not participating in the MIM programme, but attending the same well baby clinic as those in the experimental group. Control group II consisted of mothers who only attended their local well baby clinics as their community-nursing agency did not offer the MIM programme in their area. Four local authority areas were experimental locations (Breda, Dordrecht, Uden and Sneek). These community-nursing agencies offer the MIM programme in addition to the regular well baby clinics. Two other local authority areas (Almelo and Den Bosch) were allocated for control purposes. They provide well baby clinics only.

Recruitment of Mother-Infant Dyads
The initial plan was to ask the mothers to participate in the evaluation study shortly after their confinement, but this was changed for organisational reasons. The request to participate in the evaluation was included in the normal home visit schedule of the well baby clinic nurse (six weeks after the confinement). This nurse gave the new parent general information concerning the evaluation and a letter from the researcher outlining the extent and aim of the study. A second letter from the community-nursing agency supporting the research was also given together with the first questionnaire. The parent (mother) had three weeks to decide on participation or not. Respondents who cannot, or who do not wish to participate in the study were asked to give their reason(s) and write those on the questionnaire. All mothers (also those who do not wish to participate) were asked to return the questionnaire to the researcher using a stamped and addressed envelope. Confidentiality was assured so that both the local nurse and social paediatrician would not know who is participating in this study. As part of the questionnaire a separate sheet was included for recording the name, address, and telephone number of each respondent so that the subsequent questionnaires could be sent directly by the researcher to each participant at the appropriate times.

Inclusion and exclusion criteria
All first-time mothers with first infants born between August 1st 1998 and 30th of March 1999 and living in the geographically defined catchment areas of the participating local well baby clinics within the six local authorities were asked to participate in the evaluation study. A criterion that the infant should be a first child was added so to adhere to the criterion set for participating in the MIM programme.

A well baby clinic is for healthy babies. Parents of sick children often refrain from using the clinic as they usually attend the outpatient clinics of hospitals or the surgery of a general practitioner. The decision was made to exclude women from the study with an infant who spent the first three months its life as an in-patient in hospital. Women and infant living in centres
for asylum-seekers were also excluded, as it was not clear whether they could participate in the study for the full duration of the study (fifteen months).

Measures to increase the likelihood to include migrant mothers
Nurses who thought that the new parents might not understand the purpose or aim of the study because of language difficulties were offered the possibility of a translating service. For this to work it is important that the researcher obtain the telephone number of the migrant family. The nurse tries to get the new parents’ permission to give their telephone number to the researchers. If this is successful the researchers will contact the translation service. The translation service will phone the new mother and explain the purpose and aim of the study. A further contact is made three weeks later to ask the migrant parents their decision on their participation in the study. If the migrant family agreed an appointment is made at a time that suits both parents and a health promotional worker who speaks both Dutch and the language of the mother. These workers were all trained for their task so that their involvement did not influence the mothers answering the questionnaire(s).

5.4 Instruments for mother / infant evaluation

Three types of instruments were used: instruments to describe background characteristics of mother and infant, instruments to measure outcomes and finally, instruments measuring the mediating factors. Criteria applied in choosing suitable instruments were as follows: (1) the instrument has been validated, or recently used in research with mother/infant dyads and (2) if possible, an international (English) version of the instrument was available. Two measurements take place using three questionnaires: the first at approximately six weeks (T1 pre-test), the second when the infant is 10 months (T2 pre-test) and the third (T3 post-test) when the infant is transferring from the well baby clinic to the toddler clinic at age approximately 15 months. Figure 5.4 gives an overview of the instruments used and the moment for their administration.

5.4.1 Instrument to measure background characteristics
This questionnaire deals with demographic data and maternal health before, during and shortly after the pregnancy. There were questions on the confinement itself and a variety of social economic status variables. The educational level categories were: primary level primary school and intermediate secondary school (MAVO), second level education consists of higher level secondary school (HAVO), pre-academic (VWO) and intermediate vocational (MBO), third level was higher vocational (HBO) training, and university. The questions are taken from the national standard of the well baby clinic schedule, which is used in all well baby clinics. The results of this study will be compared with those of national figures as supplied by the Central Statistics Office. This questionnaire was administered at T1, approximately six weeks after the confinement. Information on income was included in the second questionnaire Income categories are: low-income (less than 2000 guilders / 908. Euro per month), medium income (between 2001 - 4000 guilders, between 908 - 1816 Euro) and high income receiving a net monthly household income of more than 4001 guilders (more than 1817 Euro per month).

5.4.2 Instruments to measure outcome indicators
Four outcome indicators were identified which were (1) maternal and infant general health, maternal mental health, (2) maternal and infant behaviour, (3) maternal competence and (4)
### Instruments

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<tr>
<th>Instruments</th>
<th>T1</th>
<th>T2</th>
<th>T3</th>
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<td><strong>Background characteristics</strong></td>
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<td>Pregnancy and Confinement and Life events</td>
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<td>Income</td>
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<td><strong>Outcomes</strong></td>
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<td>Maternal Fat Consumption</td>
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<td>Infant Feeding Practice (mode of feeding)</td>
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<td>Nutrition</td>
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<td>Vaccination</td>
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<td>Maternal Mental Health</td>
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<td>Infant General Health</td>
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<td>Maternal General Health</td>
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<td>Satisfaction Well baby clinic</td>
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<td>Maternal Competence</td>
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<tr>
<td><strong>Mediating Factors</strong></td>
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<td>Social Support Interactions</td>
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<td>Support Partner Household Activities</td>
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Table 5.4 Overview of instruments and moment of administration.

maternal satisfaction with the well baby clinic. The instruments used are presented in the following paragraphs. Available α of the various tests is mentioned in the text.

**Maternal general health (T1 - T3)**
The general maternal health question was taken from the national health survey. ‘How would you describe your health in the past.... months? The time between pre and post-test was six months when the infant was ten and fifteen months old respectively. Answer categories are on a five point scale and elicit information whether the woman feels very well to very bad: very good, good, not so good, not so bad, bad and very bad.

**Maternal mental health (T2 - T3)**
To determine maternal mental health the short version of the General Health Questionnaire (GHQ) was used. The GHQ - 12 is used as an indicator for maternal mental well being shortly after birth and when the infant is approximately 15 months old. The GHQ - 12 is an established and standardised first-stage-screening questionnaire of non-psychotic psychiatric illness for use in surveys of adult mental health problems in a general population. Its reliability has been established and is generally in the high 0.80s. The GHQ - 12 asks participants to rate on a four-point scale the severity of symptoms of psychological distress over the past few weeks. Typical items included ‘lost much sleep over worry’, ‘felt constantly under strain’, ‘been feeling unhappy and depressed’, ‘been able to face up to your problems’, and been thinking of...
yourself as a worthless person'. In common with other screening instruments the GHQ-12 does not make a clinical diagnosis. Anyone reporting 2/3 or more positive items is a possible psychiatric ‘case’. The Dutch 12-item version was used for one of its original purposes of characterising mental health status pre and posts the mental health promotion activities. One missing value will be substituted with the value obtained using the prescribed procedure by Koeter & Ormel. Participants who fail to answer 2 or more questions are classified as ‘missing’. They are omitted from the analysis.

Maternal competence with parenting (T2 - T3)
Six items were included to determine the competence (self-efficacy) with regard to parenting. These questions were on a seven-point scale and the results will be compared with those of Bregman (1999).

Satisfaction with the well baby clinic activities (T2 - T3)
The questions are based on the sub scales of the Client Survey Schedule published by the National Association for Home Care and Community Nursing. The questions concern the expectations, satisfaction and knowledge of activities of well baby clinics. No information on reliability on this Schedule is available. The results of the evaluation will be compared with those supplied by the nursing agencies and the IVT or CBS.

Maternal / infant behaviour measures
The maternal and infant behaviour outcome indicators used were duration of breastfeeding, feeding cup or drinking cup, infant nutrition and maternal fat consumption. Reactions to the inoculation against Diphtheria, Pertussis, Tetanus, Poliomyelitis (DKTP), Haemophilus influenza type b (Hib) and Mums, Measles and Rubella (BMR) were noted and used to investigate whether the infant reaction influenced the maternal perception of her parenting competence.

Breastfeeding (T2)
Duration of breast-feeding was imported into an SPSS-file as ‘did...’ or ‘did not start breast feeding my child’ (variable 3), and number of days, weeks and/or months, if they had ever breast-fed their child. This data was recoded to total number of days, with one week as seven days and one month as thirty days. Then the subjects were categorised for duration of breast feeding (variable 4): (0) not applicable, < 10 days, 10 days - 3 months (89 days), 3 - 7 months (90 days - 209 days), and 7 months and longer (> 210 days). The results were compared with the recommendations from the ‘Inspection for Health Care’. These recommendations suggest that the baby be breastfed for at least three months, but preferably for a longer period of time.

Feeding bottle or drinking cup (T2)
The analysis of the answers to the questions about drinking cup and baby bottle use was divided in two parts. In the first part the percentage of the respondents, which had made the switch from exclusively baby bottle use to drinking cup, use was assessed (variable 1). In the second part, the frequency of baby bottle use (variable 2) was analysed. The numbers of times the cup or baby bottle was used per day were each imported into an SPSS-file. The results were compared with the recommendations from the ‘Bottle it up - take a cup’-campaign. These recommendations are to switch from baby bottle to cup use from nine months upwards.
**Nutrition and food consumption (T2)**

The preferred method for a dietary intake survey is the face-to-face interview with a dietician. However, this was not possible due to budgetary and practical constraints, which would involve hiring a dietician to instruct all mothers in the use of the diary and to avail of her services in the data processing and analysing stage. Short-cut methods of estimating dietary intake by recall have been devised. Therefore, a nutritional diary was used in which the mothers were asked to recall their infants’ dietary intake over a period of 24 hours. Each mother is asked to record what her infant eats and drinks over a 24-hour period. The first-time mother records this information between the 10-11th months of the infants’ life. This method is subject to inaccuracies but useful to compare different groups. The data will be compared with the recommended daily intake appropriate for infants of that age. The assessment will also give information on how the baby takes its liquids; feeding bottle or cup. The first and second questionnaire also included items pertaining to breastfeeding practice and use of formula milk.

The assessment of the mothers’ own dietary intake was limited to a quick scan using a popular list of fat intake which assesses the adherence of these women to the national ‘Less fat Campaign’.

**Energy and macronutrients (T2)**

Basis for the energy and nutrient study were 165 records coded and analysed by Baars (2000) and Van Buren (2000). Of these records five, being three from the experimental and two from control group I were excluded because missing data could not be obtained by telephone. Total energy and macronutrients from the infants’ consumption of food was calculated and compared with previous studies by Skinner (1997) and Geuns (1985).

**Fat consumption of the mother (T2)**

An indication for the fat consumption of the mothers was measured by an adjusted ‘fatty foods-test’. The original test consists of fourteen questions about the consumption of different types of foods. The fatty foods-test was originally developed to make people aware of their fat consumption, by giving them insight into their own food habits and to indicate what is meant by good fat consumption. In this study the test was used as a rough indication for the way respondents act upon the guidelines from the ‘Watch your fat’-campaign. Subjects may answer with ‘yes’, ‘no’, or ‘sometimes’. In this study a fourth category (‘never use this type of food’) was added because the original three-category possibility was supposedly unclear. The answers on the test were imported into an SPSS-file and recoded into numeric scores, according to those mentioned in the original fatty foods-test. The score ‘never use this sort of product’ was recoded as if the answer was ‘no’. Subjects were then classified into three categories by accumulating their scores on the fourteen questions): < 22 (+/+) good fat consumption, 22 - 30 (+/-) good fat consumption, but improvement is possible and > 30 (-/-) should use less and other type of fat. The results were compared with the results from the evaluation national study from the ‘fatty foods-test’.

**Vaccinations (T2 - T3)**

The mothers are asked at T1 and T3 (at respectively 10 and 15 months) whether their infant had received the appropriate inoculations against Diphtheria, Pertussis, Tetanus, Poliomyelitis (DKTP and Haemophilus influenza type b (Hib) and Mums, Measles and Rubella (BMR). The results of the analysis in this study will be compared with those of the National Dutch Sentinel Centres for Infant Health Care.
5.4.3 Instruments to measure mediating indicators

Three mediating factors were identified for inclusion in the model: social support, problem solving capacity / empowerment and maternal perception of infant temperament.

Social support (T1 and T3)
The need for social support and the actual received social support is measured using the Social Support List Interactions (SSL-I) and Social Support List - Discrepancies (SSL-D) respectively. Both scales consist of 34 items and six identical sub-scales of types of social support. A close cohesion has been reported between all sub-scales in both SSL-D and SSL-I. The sub-scales and their reliability in SSL-D and SSL-I respectively are:

- General emotional interactions (putting an arm around one's shoulders), respectively \( \alpha = 0.82 \) and 0.82;
- Emotional support when experiencing difficulties (helping to get a clear picture of the problem), \( \alpha = 0.89 \) and 0.90;
- Worthiness (taking you in confidence, giving you compliments), \( \alpha = 0.82 \) and 0.83;
- Instrumental support (giving advice when dealing with problems, giving practical help at special occasions such as illness or moving house), \( \alpha = 0.72 \) and 0.84;
- Social companionship (getting together, go shopping, or to a cinema), \( \alpha = 0.74 \) and 0.81; and
- Informational support (in relation to expected behaviour such as positive feedback), \( \alpha = 0.74 \) and 0.77.

The SSL-D uses four answer categories: from '1 - yes, I miss this: I would like to experience this more', to 4 - 'this is happening too often: it would be better if it were less'. After re-coding high sum-scores point to severe lack of social support. The SSL-I uses also four answer categories: from 'seldom/never' to 'very often'. The sum-score for the whole scale or sub-scale give the measure in which the respondent feels supported. A high score means a lot of support.

The Social Support List - Negative interactions (SSL-N) deals with seven negative interactions and uses also the same four answer categories as the SSL-I. This instrument is analysed in conjunction with the SSL-I. The results of the analysis of this study will be compared with those of Bregman (1998). Two items were included to elicit information on the support with household and caring tasks by the partner. These were on a five-point scale ranging from satisfied to not satisfied.

Problem solving capacity / empowerment (T1 - T3)
Leenders (1984) developed a 24-item locus of control scale for parents with children aged two to five years old. In this scale he changed everyday activities into pedagogical factors specifically focused on the process of caring, nurturing and stimulating development in young children. The scale is difficult for first-time mothers with infants because they have not experienced older children yet. Similar to an adapted version used by Van Rijt et al (1996), the mothers are asked to put a two-year-old in mind when answering the questions. No information and reliability \( \alpha \) was presented in this study. In two studies by Janssens, De Veer and Janssen (1991) the \( \alpha \) found was respectively 0.58 and 0.62. With only external locus formulated items the \( \alpha \) goes up to 0.68. The aim of the scale is to determine how the mother sees herself in general as a parent and whether she feels in control in her parenting role in our study. In our study two items are omitted as they were considered inappropriate: Item 8, which refers to school-going children and item 24, which refers to a mother who cannot stop her child taking sweets because all children in the neighbourhood are taking sweets.
Maternal perception of infant temperament (T2 - T3)
The Infant Characteristics Questionnaire (ICQ) was developed as a short, factor-analytic screening device to assess the construct of 'difficult temperament.' The ICQ detects difficult and irritable infants. The main aim in using the ICQ is to detect babies with difficult temperament or babies with negative emotionality as an aspect of temperament. The main objective is to present a descriptive analysis and theoretical justification of the different relevant aspects in the attachment quality process: infant temperament, perceived maternal competence with parenting, locus of control, perceived maternal mental health status and social support. Originally the ICQ contains 32 items rated on a seven-point scale, from 1 (describing an optimal temperamental trait) to 7 (difficult temperament). Bates (1982) describes four dimensions: fussy-difficult, unadaptable, dull and unpredictable. The original instrument had a test-retest of 0.70. The ICQ measures the parent perceptions of the infant, not necessarily the infants' behaviour as it might be objectively recorded.

The Baby and Toddler Temperament Questionnaire is a Dutch version of the Infant Characteristics Questionnaire by Bates et al, developed by Kohnstamm (1988) and students of the Department of Developmental Psychology of Leyden University. According to Kohnstamm the instrument replicated well in the Netherlands and Germany, but no alphas were presented in the article. However, the test-retest correlation for infants between seven and 14 months was 0.71, where Bates found 0.70. This Dutch version contains 33 items in three dimensions. The results on this questionnaire of our study will be compared with those found by Van de Boom (1987) and Kohnstamm (1988). The 13-month version is used for the both T1 and T3: at age 10 and 15 months.

5.4.4 Accumulation of risk factors
Moderating factors to calculate the risk accumulation were teenage or migrant mother, infant in incubator, low birth weight (less than 1500 gr.), primary school certificate, alcohol use, smoking and life event. These were scored either yes = 1, or no = 0, GHQ 3 was scored 1 and GHQ 2 was scored 0. 'Difficult' infants (ICQ), locus of control and feeling incompetent were calculated using their sum scores. All scores up to the mean were 0, scores with one SD from the mean were 1 and scores with two SD were 2. Those with two SD from the mean were scored as 1 and all others 0. The resulting scores of all risk indicators were summed and categorised into four groups: no risks (0), slight risk but not serious (1 - 2) and risk-full (3 - 5) and very risk-full (6+). A non-parametric test (Kruskal Wallis) will determine any differences between risk groups and mediating variables and between the experimental and two control groups by the four risk category groups.

5.5 Duration of fieldwork
The MIM programme lasts eighteen months. However, this evaluation is limited to the first fifteen months of the infant's life. At that age there is a natural break due to the infants' transfer from the well baby clinic to the toddler services. Fieldwork was planned to take approximately 21 months: six months for the formation of the cohort and fifteen months for the follow-up. The forming of the cohort was extended by an extra two months due to the difficulty recruiting MIM participants. As a consequence the total duration of the fieldwork stage was 23 months.
5.6 Data analysis

The programme evaluates at group (mother / child couples) and organisation level. The influence of MIM on experimental mothers in their use of the information about nutrition, perceived state of health, social support facilities, competence in parenting and locus of control are scrutinised. The highest educational attainment of the mother is used to determine the family’s social economic status category. Social economic status and its correlation with breastfeeding will be analysed using multivariate logistic regression, corrected for age of the mother, and ethnic identity (country of birth Netherlands / western Europe, Mediterranean and others). Straight frequencies, averages and percentages will be calculated. Within the individual groups (in each of the six community-nursing agencies), mental health scores at the first and follow-up assessment were compared by Wilcoxon matched pairs, signed rank test. ANOVA, Chi-square, t-test and Mann-Whitney non-parametric U test were used for between-group analyses (intervention - control I - control II) depending on the nature and distribution of the data. Factor analyses were employed where appropriate. All statistical tests were calculated using the LAN Network version of the Statistical Package for the Social Sciences 10 developed for Windows 95. An overview of the model for analysis is presented in figure 5.6.
Mothers Informing Mothers Programme

Modestating variables

*Maternal characteristics*
- Age, education and marital status
- Cultural background
- Smoking, alcohol use
- Life events during pregnancy

*Infant characteristics*
- Gender, birth weight, complicated birth, incubator occupancy and place of delivery

Mediating variables

*Social Support*
- Household and caring support by partner
- Support from wider social network

*Problem Solving Capacity*
- Empowerment
- Locus of control

*Maternal Perception infant temperament*
- Infant characteristics as perceived by mother

Outcome variables

*Maternal / Infant Health Indicators*
- Perceived maternal general health
- Perceived maternal mental health
- Infant health as perceived by mother

*Maternal / Infant Behaviour*
- Increased duration breastfeeding
- Increased cup use
- Energy and Macro nutrients according to national guidelines
- Vaccinations

*Maternal Competence in Parenting*
- Maternal perception of competence

*Satisfaction with Well baby clinic*
- Maternal satisfaction with well baby clinic staff and services

Figure 5.6 Model for MIM analysis
Chapter 6

Validity of design and instruments

6.1 Introduction

Evaluating a community-based intervention programme is fraught with difficulties. This evaluation was examining a programme in practice. The activities necessary for the evaluation needed to be explained at different levels within the nursing agencies. Respondents needed to be reached and sufficient mothers recruited into the MIM programme and in the cohort for this evaluation. Thankfully there was much support from the management of community-nursing agencies, co-ordinators, visiting mothers, community nurses and many others working for the community-nursing agencies.

This chapter presents the response, including characteristics of non-respondents and dropout from the study, demographic data, background information from pregnancy, confinement and delivery and the validity of the instruments to measure mediating variables. The analyses in the study were carried out using SPSS version 10. The instruments for information seeking, perceived infant temperament, maternal competence in parenting, use of well baby clinic activities, and maternal expectations and satisfaction with the well baby clinic were grouped by means of a principal component analysis with varimax rotation (factor analysis). The locus of control scale was grouped without varimax rotation. Cronbach's alpha was used as a measurement of reliability of scales derived from the factor analysis with over 0.80 judged good, between 0.65 - 0.80 reasonable and under 0.65 unacceptable. Factors were calculated as sums of items, standardised for scale width. Relations between variables were tested with Pearson correlation. Differences between the three intervention groups were tested with anova and the non-parametric Kruskal Wallis test. Characteristics of first-time mothers influencing the maternal outcomes were analysed with multivariate regression.

As mentioned in chapter 5, this is a prospective quasi-experimental cohort study in a field setting, which used one experimental and two control groups. Control group I were first-time mothers living in the experimental location, but not participating in MIM and control group II consisted of first-time mothers not living in the experimental locations.

The next paragraph outlines the difficulties in recruiting experimental mothers from the MIM programme, the response of T1, T2 and T3 and measures to increase the response.

6.2 Difficulty in recruiting MIM mothers

In a community-based study it is essential to know whether the subjects are representatives of an entire population or a satisfactory sample thereof. The aim was to recruit experimental MIM and control mothers using a cohort of women who gave birth to a life infant between a given eight month period in six local authority areas which were served by local health centres. Well baby clinic teams were based in these centres. Information on local births comes
from the local authority birth register, which is sent via the national vaccination programme to the community-nursing agencies and distributed to the community nurses and paediatricians. As community nurses visit all new mothers in their locality to invite them to use the well baby clinic services and avail of the national vaccination programme it was felt that they were the most appropriate individuals to recruit the cohort of women.

In six locations 850 T1 questionnaires were distributed from August 1st 1998 to March 31st 1999. It was not possible to control whether the nurses actually handed over all these questionnaires. A question asking mothers whether they were participating in the MIM programme was not included. This was on advice of the MIM co-ordinators. The reason was that most potential participants of the MIM programme had not made the decision to participate. Instead this question was asked in the second questionnaire, alongside questions on participation in other activities for mothers of infants.

The second questionnaire (T2) was distributed to mothers at the time their infant was aged 10 months. This was done to coincide with the mothers’ weaning practices and the changing of the feeding bottle to the drinking cup. However, when the second questionnaire was returned it revealed that the experimental group (MIM-mothers) was underrepresented. Only 11 MIM-mothers were identified. Additional information was sought. The first reason was connected with the matching of mothers. The recruitment of experimental mothers was reduced during an eight-month period. This was due to illness or change of employment of the co-ordinator, or a stop in recruiting experimental mothers. This stoppage occurred when (1) visiting mothers were unable to take on more first-time mother to visit or (2) when the co-ordinator was unable to support an additional visiting mother. A second reason was that some experimental and other mothers were not asked to participate in the study.

Using postal codes it was possible to identify the neighbourhoods where participation was low.

To ensure confidentiality the MIM-mothers were asked in a letter from the researcher to participate in the evaluation. This letter was brought to the mothers by the co-ordinators. Their decision could be sent to the researcher directly. Confidentiality was thus assured. Due to low-recruitment to the MIM programme the cohort was extended to include first-time mothers and infants born in February and March 1999. This meant that the cohort was extended by two months. This brought the cohort development period to ten months. The first two questionnaires were combined and brought personally by the co-ordinators to these additional MIM participants.

Participants with an infant over twelve months were excluded from the evaluation for two reasons. Firstly, the time-span between this questionnaire and the one at fifteen months would have been too short. Secondly, the time-span between the confinement and the time of questioning would be too long. The ‘new mothers’ received one questionnaire and two stamped and addressed envelopes, the second for sending the name, address, and telephone number separately from the questionnaire. Confidentiality was again assured in that the mothers did not have to indicate their willingness to participate in the evaluation to the co-ordinator. The answer was sent directly to the researchers.

6.2.1 Participants and response in the study
The response was 412 after the first questionnaire (T1), 66 of those refused to participate. A total of 346 mother / infant dyads participated at T1. Approximately 75% (N = 261) were living
in the four experimental locations and 83 in the two control locations. Seven women did not include their home address. They were unable to receive the second questionnaire (T2). The second questionnaire was sent to 339 women. The response of T2 was 264. Three women refused further participation. Non-response was 82.

The third questionnaire was sent to 261 mothers, distributed over three groups: 42 first-time mothers in the experimental MIM group, 158 in control group I, and 61 mothers in control group II. The response of the third questionnaire was 221, with two refusals. Thirty-eight mothers did not respond. The response percentage was 85% when comparing the number of participants in T2 and 65% when the response was compared with those in T1.

From the 412 original responses, 120 did not respond either to T2 or T3. There was therefore no information available about the reason for refusal. The number of unanswered questionnaires was 66. Of these 47 refused outright to participate, nine refused due to lack of time, changing address outside the municipality, or had no interest. It was impossible to convince 10 migrant women to participate due to language difficulties, although translation and reading services were offered. Figure 6.1 gives an overview of the response during the study.

<table>
<thead>
<tr>
<th>Number of Questionnaires</th>
<th>N = 850</th>
</tr>
</thead>
<tbody>
<tr>
<td>Response 1st Pre-test</td>
<td>N = 412</td>
</tr>
<tr>
<td></td>
<td>(48.5%)</td>
</tr>
<tr>
<td>Participating in Evaluation Study</td>
<td>N = 346</td>
</tr>
<tr>
<td>T1 Experimental location</td>
<td>N = 263</td>
</tr>
<tr>
<td>• Experimental MIM</td>
<td>N = 42</td>
</tr>
<tr>
<td>• Control Group I</td>
<td>N = 83</td>
</tr>
<tr>
<td>Control Group location</td>
<td>N = 83</td>
</tr>
<tr>
<td>Refusals N = 66</td>
<td></td>
</tr>
<tr>
<td>• Refusal outright (47)</td>
<td></td>
</tr>
<tr>
<td>• No time, imminent change of address (9)</td>
<td></td>
</tr>
<tr>
<td>• Language difficulties (10)</td>
<td></td>
</tr>
<tr>
<td>(migrant couples)</td>
<td></td>
</tr>
<tr>
<td>No address N = 7</td>
<td></td>
</tr>
<tr>
<td>Number of Participants 2nd Pre-test</td>
<td>N = 339</td>
</tr>
<tr>
<td>Response 2nd Pre-test</td>
<td>N = 261</td>
</tr>
<tr>
<td>• MIM Mothers</td>
<td>N = 42</td>
</tr>
<tr>
<td>• Control Group I</td>
<td>N = 158</td>
</tr>
<tr>
<td>• Control Group II</td>
<td>N = 61</td>
</tr>
<tr>
<td>Total non-response N = 85</td>
<td></td>
</tr>
<tr>
<td>• Refusals N = 3</td>
<td></td>
</tr>
<tr>
<td>• Non-response N = 82</td>
<td></td>
</tr>
<tr>
<td>Response Post-test</td>
<td>N = 221</td>
</tr>
<tr>
<td>• MIM Mothers</td>
<td>N = 33</td>
</tr>
<tr>
<td>• Control Group I</td>
<td>N = 139</td>
</tr>
<tr>
<td>• Control Group II</td>
<td>N = 49</td>
</tr>
<tr>
<td>Total non-response N = 40</td>
<td></td>
</tr>
<tr>
<td>• Refusals N = 2</td>
<td></td>
</tr>
<tr>
<td>• Non-response N = 38</td>
<td></td>
</tr>
</tbody>
</table>

Figure 6.2 Response MIM study at different stages
Response on the post-test

There were 33 first-time mothers in the experimental group, 139 mothers in control group I and 49 mothers in control group II who finishing the study. Overall response was good considering the length of the fieldwork period and using the number of respondents of the first pre-test as the denominator (221 out of 346 equals 63.9%).

6.2.2 Go or no-go

A power analysis was performed based on the number of respondents necessary in the experimental group. This was difficult to calculate, as information on the outcome to use could not be agreed beforehand. No standards were set for specific outcomes of the programme when its implementation started. The nursing agencies were much more interested in direct benefits credited to the programme and their range and the level of services used than an academic exercise of statistical significance on all mediating or outcome data. A formula to calculate the number of participants necessary for the study with sufficient power to judge the efficacy of MIM in relation to the T1 GHQ-12 sum score was taken from Bouter & Van Dongen (1988). Means of the different groups was varied: 2.44 in the experimental, 1.93 in control I and 2.95 in control II group respectively. A 'normal' GHQ-12 score would be two or less. Using a power of 80% and \( \alpha = 0.05 \), the number of participants necessary for detecting significant differences between the experimental group and control group II meant that 553 participants should have been included in the study. When the power was reduced to 70% and \( \alpha = 0.05 \), the number of participants were sufficient, as the number necessary to detect significant differences would have been 343.

When the response was known a decision had to be made to continue or cease the study. The decision was to continue for different reasons. It was felt that the mothers who were participating in the study had invested their time and they should not be ignored. Important lessons could be learned if the evaluation continued as the aim of the study was also to integrate appropriate theoretical perspectives and provide a theoretical basis for the MIM programme. A theoretical model was developed and the response was such that calculations necessary to test the model were now present. The cohort study itself was a constitutional part of the whole study focused on the effects of the programme. The sample size was also sufficient to determine differences over time between intervention groups using non-parametric tests. The evaluation also provided important information for enhancing the future organisation and implementation of the programme. Finally, the first-time mothers were promised a synopsis of the results of the study as it contained not only items on the MIM programme but also on activities of the well baby clinic.

6.2.3 Non-participation

Due to privacy constraints it was impossible to obtain directly the exact addresses of first-time parents at the municipal birth registry for T1. Repeat questionnaires could therefore not be sent since the nurses themselves did not know who was participating. This meant that the collection of background characteristics on non-respondents in the T1-test was impossible. Each non-respondent of T2 and T3 was contacted one month after the due return date for each questionnaire. Those who had included a telephone number were initially contacted by telephone to return the original T2 or T3 questionnaire. All non-respondents except those who indicated their unwillingness to continue (by telephone) were sent one duplicate T2 or T3 questionnaire.
Sampling bias is a source of bias that is found in any field work-study. Subjects who are motivated may be more conscious about their behaviour and therefore the sample mean may not represent the population mean. It was assumed - based on the data provided by the nursing agencies - that approximately 1000 infants would be born in the period specified and that approximately one third of those would participate in the MIM programme. As mentioned in 6.1, this was not the case. In addition not all nurses registered systematically the number of questionnaires that were handed-out.

6.2.4 Dropping-out
Information from those who dropped out during the study with those who stayed in to the end was used to assess whether there were possible differences between those two groups. There were no significant differences found for participating in a specific local authority area, maternal country of birth, education and employment.

Reasons given for dropping-out from the study between T1 and T2 were varied: time constraints, imminent move to other locations, no interest, serious illness of infant, a life event in the family or inability on the part of the postal services to deliver the questionnaire. The dropping-out between T1 and T3 is described in chapter 7. The three intervention groups were comparable in maternal age and education level, but not in age of the infant. The infants in the experimental group were significantly older than those in the two control groups. This difference is explained by the extra effort to enlarge the experimental group.

6.2.5 Selection bias
The lack of randomisation adds to the difficulty of assessing the validity of the research findings because effects that are due to self-selection or other factors not under the researchers' control may be erroneously attributed to a health promotion intervention.

Measures were taken to avoid bias. (1) Actions were taken to try to include all first-time mothers in the participating areas. Well baby clinic nurses in the four locations were instructed in the same manner and were also handed a written reminder of these instructions. In practice, the nursing agencies also asked maternity nurses to recruit first-time mothers in to the study. (2) The respondents were told that the questionnaires were approximately equal size. The first questionnaire consisted of 14 pages. (3) Community nurses as representatives of the nursing agency personally gave them to the mothers during a home visit. The subject (well baby clinic and infant care issues) was felt to be of interest to the mothers. (4) Those responding were promised a synopsis of the study. (5) A university is often seen as a reputable institute.

A response rate was calculated using the total design method (TDM), which assumed an increased response due to the personalised manner in which the questionnaire was given to the first-time mothers. The expected response calculations yielded approximately 50%. Follow-up of non-respondents in the first pre-test was not possible as outlined previously. Follow-up of subsequent questionnaires was carried out using combined telephone and questionnaire repeats.

6.2.6 Conclusions
The number of respondents in the study and in the MIM group was less than expected. Activities were undertaken to increase the cohort size, but this proved impossible. Only 86
experimental mothers were recruited into the programme in the cohort development period. Approximately 50% of these were included in the study. The three intervention groups were comparable on maternal age, and educational level. Experimental mothers were not randomly selected but two control groups were in place. The experimental group is small and as a result validity of findings can be biased. The study however, gives good indications for further research as it provides a theoretical framework and the necessary information for such activities.

6.3 Demographic variables and pre-delivery history

The demographic data was collected from 346 first-time mothers. For some variables the number of mothers answering the question is different. This is indicated in the text. The data consists of background characteristics such as age, ethnicity, household income and education, type of health insurance and housing. The mothers' age ranged from 17 - 40 (average 29.9). All teenagers (8) were in control group II. Twenty women were 36 or older. Eighteen were born outside the Netherlands; six from another EU-country, the others from the Dutch Antilles, China, Indonesia, Philippines, Surinam and Turkey. Fifty mothers had finished primary level education, (seven MIM), 195 secondary (23 MIM) and 97 (12 MIM) finished third level education. Most women (264) contribute to compulsory health insurance and others (79) were privately insured (self-employed, civil servants and those earning more than 62,000 guilders per annum). One family is uninsured out of principle (religious reason).

Questions about income have been asked at T2 with 231 out of 261 answering these questions. Most of the 231 (66.8%) women who answered (120, 34.7%) had a high income (> 4000 guilders net per month), 100 had an income between 2000 - 4000 guilders per month, whilst only 11 (3.2%) had less than 2000 guilders per month to spend. Most participants are living in terraced houses (265, 76.6%), 50 live in apartments and 28 in detached houses (which include farms). Eight respondents judged their neighbourhoods to be unsafe.

6.4 Characteristics of pregnancy and delivery

In the following paragraphs basic information concerning life events prior to and during the pregnancy are presented, as is information on smoking and alcohol use. This is followed by information on the place and type of the delivery.

Life events during pregnancy
Instruments to gain insights into the occurrence of life events contain many items. Due to the inclusion of extensive background information it was decided instead to use one open question to serve as an indicator for life events during the pregnancy. Approximately a third of all women (128; 37%) indicated that they experienced a life event during pregnancy, such as moving house, one of their (grand)parents dying, friend, or relatives experiencing a serious disease or accident. There were mothers who had had a serious car accident during pregnancy, which resulted in psychological distress, a suicide in the extended family, or a colleague gave birth to a child with a severe handicap, a friends' baby died of cot syndrome, and losing
one of a twin during the pregnancy. Four women indicated a very negative reaction from their employer when informing the employer about their pregnancy. In seven cases fertility treatment resulted in a successful pregnancy.

Alcohol and smoking
Most expectant women (305) reported the non-drinking of alcoholic beverages whilst 276 reported a non-smoking habit during their pregnancy. For 60 who did smoke during pregnancy, the number of cigarettes varied from 1 - 25 cigarettes a day. Fifteen smoked less than five, 25 smoked less than 10, twelve smoked 10, and ten smoked 15, six smoked more than 20 cigarettes a day. Of the 39 women who drank alcohol during their pregnancy 31 had one glass of alcohol (wine) on average per week. Eight women drank between 2 - 5 glasses on average at the weekend.

Health
A general health question was asked at T1, T2, and T3: ‘How was your health in the past ... months’? It was a self-rating question on a five-point scale. At T1 it related to the women’s perception of their general health in the six months prior to the confirmation of their pregnancy and also during their pregnancy. At T2 and T3 it related to their health in the last three months. The categories used were similar: The women scored in T1 ‘very good’ (49.1%), ‘good’ (43.9%), ‘sometimes good, sometimes bad’, ‘not so good’ (5.8%) and ‘bad’ (N = 3) for health prior and similar figures for health during pregnancy. Only one woman scored ‘bad health’ during her pregnancy. Approximately 41% (141) experienced one or more problems during their pregnancy: 43 had high blood pressure (especially in the last trimester) five of whom were treated for toxaemia, 3.5% (12) had an amniocentesis, four were small for gestation, 18 had vaginal blood loss and two had a treated miscarriage. Three women experienced psychological problems, 19 were vomiting on a regular basis during the whole pregnancy and 69 (20%) suffered from anaemia.

Place and type of delivery
Approximately 42% of the women (146; 19.9%) planned a home delivery: however, 69 of those (47.2%) of those ended up in hospital. One hundred and forty-one women had a planned hospital admission (40.6%) and 60 (17.3%) women had a short-stay delivery. In total there were 77 (22.2%) home and 269 hospital deliveries. Hospital admission was mostly on medical grounds (212, 78% of medical admissions), 54 (20% of hospital admissions) were for personal reasons and three on social grounds. Seven women did not give a reason. Approximately 51.6% had a normal (head first) delivery, 30% (104) had their delivery induced and more than a third (40.1%) had a complicated delivery; vacuum extraction 62 (17.9%) caesarean section 33 (9.5%) forceps 25 (7.2%) and coccyx 19 (5.5%), whilst 28 women did not indicate the mode of delivery.

How does this data compare with that of Dutch national data? The national average for first-time mothers is approximately identical as the average found in this study (29.0 - 29.2 respectively). According to national statistics, approximately 35.4% of all mothers had home deliveries. This figure does not specify first births. Forty-two percent of women had planned their delivery at home, but 19.9% were forced by circumstances to deliver their infant in hospital. National percentage for a hospital delivery is 64.6 (1997). In the MIM study 40.6% + 17.3% (planned short-stay) of women (medical, social or personal reasons) planned a hospital delivery. These figures coupled with those from the involuntary hospital delivery (19.9%) bring the total hospital deliveries percentage to 77.8%. This study showed a lower rate of caesarean
section (9.5%) than the national average (11.2%) as published by the central statistics office. Maternal general health is compared with national data on perceived general health of the general population.

6.5 Characteristics of the infant

The background characteristics of the infants are gender, birth weight, congenital malformations, and accidents during or shortly after birth. More boys (189) than girls (157) were born. The length at birth of most infants was not measured. The range of birth weight was between 1075 - 4935 grams with an average of 3340 grams. Five infants had a birth weight of less than 2000 gram: Two in the 26 - 30 year age group and one in the 31 - 35 year age group. Control group I had one infant less than 2000 gram born to a mother in the 31 - 35 age group. Control group II also had one born to a teenager mother. Sixteen infants (5.8%) were less than 2500 gram, one being less than 1500 gram. All infants born to mothers in the experimental group had a birth weight of more than 2000 gram.

Approximately 300 infants had no problems after birth. Some infant had more than one problem identified such as 44 were born in meconium fluid, 29 needed to spend some time in an incubator, 26 had jaundice, 13 breathing difficulties, six needed photosynthesis, five were cyanotic and one had a loss of most vital signs. Seven infants had a congenital malformation or an accident at birth: dislocated shoulder, broken collarbone, umbilical hernia (2) clubfoot, ear malformation, an intestinal malformation and an inverted foot.

6.6 Validity of instruments measuring mediating factors

Instruments used were divided into two categories: instruments measuring mediating factors and those who measure outcome factors.

Mediating factors
Mediating factors were assessed with the following instruments: SSL-i, SSL-d and SSL-n and two items on the support of the partner (social support), Tilburg Questionnaire (information seeking), ICQ (maternal perception of infant's temperament and), Bregmans' scale on parenting (self-efficacy), LOCO (maternal locus of control), two sub scales from the Client Survey on Expectations and Satisfaction with the clinic and the GHQ-12 (Mental Health). Table 6.5 gives an overview of items per scale, their mean, standard deviation and Cronbach's alpha as a measure of reliability of the factors. Instruments which scored 0.65 or lower on Cronbach's were excluded in further analysis.

6.6.1 Social Support: Social interaction, discrepancies, and negative interactions
The social support interaction and social discrepancies scales (each 34 item) were included at T1 and T3.

Social support interactions
From T1 data 341 were used in the analysis. One item per sub scale, or four items missing over the whole scale were allowed with missing values inserted using the method described by Van Sonderen (1993) 151: calculating the average of the remaining items. Six different types of
| Instruments | # items | Baseline | | | | T3 | | | | | | Mean | SD | α | Mean | SD | α | Mean | SD | α |
|----------|--------|----------|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| SSL-I | 34 | 79.80 | 13.01 | 0.9145 | 74.19 | 12.70 | 0.9201 | | | | | | | | | | |
| Emotional support by problems | 4 | 11.12 | 2.41 | 0.7379 | 10.46 | 2.27 | 0.7623 | | | | | | | | | | |
| Appreciative support | 8 | 18.26 | 3.90 | 0.8303 | 16.35 | 3.84 | 0.8745 | | | | | | | | | | |
| Instrumental support | 6 | 14.64 | 2.95 | 0.7735 | 13.96 | 3.00 | 0.8202 | | | | | | | | | | |
| Social companionship | 7 | 13.85 | 3.43 | 0.6891 | 12.72 | 3.00 | 0.7711 | | | | | | | | | | |
| Informative support | 5 | 14.04 | 2.50 | 0.7293 | 13.03 | 2.68 | 0.8552 | | | | | | | | | | |
| Everyday emotional support | 4 | 11.12 | 2.41 | 0.7379 | 10.46 | 2.27 | 0.7623 | | | | | | | | | | |
| Emotional support by problems | 8 | 10.11 | 2.93 | 0.8370 | 10.86 | 3.46 | 0.8792 | | | | | | | | | | |
| Appreciative support | 6 | 7.53 | 1.95 | 0.7168 | 7.66 | 2.22 | 0.8257 | | | | | | | | | | |
| Instrumental support | 7 | 8.64 | 2.08 | 0.7292 | 8.92 | 2.32 | 0.7945 | | | | | | | | | | |
| Social companionship | 5 | 6.06 | 1.87 | 0.7938 | 6.76 | 2.55 | 0.8647 | | | | | | | | | | |
| Informative support | 4 | 5.47 | 1.77 | 0.7525 | 6.57 | 1.03 | - | | | | | | | | | | |
| SSL-d | 34 | 93.79 | 9.66 | 0.9241 | 91.67 | 11.48 | 0.9403 | | | | | | | | | | |
| Everyday emotional support | 4 | 5.07 | 1.71 | 0.7711 | 5.35 | 1.89 | 0.7780 | | | | | | | | | | |
| Emotional support by problems | 8 | 10.11 | 2.93 | 0.8370 | 10.86 | 3.46 | 0.8792 | | | | | | | | | | |
| Appreciative support | 6 | 7.53 | 1.95 | 0.7168 | 7.66 | 2.22 | 0.8257 | | | | | | | | | | |
| Instrumental support | 7 | 8.64 | 2.08 | 0.7292 | 8.92 | 2.32 | 0.7945 | | | | | | | | | | |
| Social companionship | 5 | 6.06 | 1.87 | 0.7938 | 6.76 | 2.55 | 0.8647 | | | | | | | | | | |
| Informative support | 4 | 5.47 | 1.77 | 0.7525 | 6.57 | 1.03 | - | | | | | | | | | | |
| SSL-n | 7 | 9.34 | 2.59 | 0.8032 | 9.46 | 2.37 | 0.7789 | | | | | | | | | | |
| Support partner household activities | 1 | 4.60 | 0.74 | n.a. | 4.56 | 0.98 | n.a. | | | | | | | | | | |
| Support partner caring activities | 1 | 4.68 | 0.67 | n.a. | 4.20 | 0.70 | n.a. | | | | | | | | | | |
| Competence with parenting | 6 | 13.80 | 4.90 | 0.7205 | 14.41 | 4.37 | 0.7131 | | | | | | | | | | |
| Locus of Control | 7 | 20.06 | 3.18 | 0.6894 | - | - | 0.5807 | | | | | | | | | | |
| ICQ (perceived temperament) | 33 | 100.97 | 19.31 | 0.8581 | 104.37 | 19.85 | 0.8720 | | | | | | | | | | |
| Satisfaction with well-baby-clinic team | 13 | 46.34 | 4.96 | 0.76 | 48.43 | 6.07 | 0.8899 | | | | | | | | | | |
| GHQ - 12 | 12 | 9.76 | 2.49 | 0.81 | 10.35 | 2.46 | 0.8524 | | | | | | | | | | |
| General Health Mother | 1 | 4.12 | 0.77 | n.a. | 4.18 | 0.86 | n.a. | | | | | | | | | | |
| General Health Infant | 1 | 4.52 | 0.65 | n.a. | 4.59 | 0.71 | n.a. | | | | | | | | | | |

Table 6.5 Overview of instruments, number of items per instrument at baseline and T3 values for mean, s.d. and α (4)

Social support were identified: Every day emotional interactions (listening, giving a hug), emotional support by problems (helping to identify the problem, comforting and consoling), appreciative support interactions (giving trust, giving compliments), instrumental support (advising, practical help when needed), social companionship (shopping together, going out) and informational interactions (feedback on actions, voicing expectations). A high score on the scale indicates the extent of support the respondents perceive from her immediate network. Overall reliability was good 0.91, the reliability of the six sub scales was varied: every day emotional interaction 0.73, emotional support by problems 0.83, appreciative support 0.77, instrumental interactions 0.69, social companionship 0.72 and informational support 0.71. The SSL-i range was from 44 - 127, mean 79.80 with a SD of 13.01.

(4) Excluded from analysis
Information seeking: T1 α 0.55; Locus of control: T3 α 0.58; Information received: not applicable (too few); Use of activities: not applicable (too few); Opinion about activities: not applicable (too few).
Social support discrepancies
There were 335 cases for analysis, with 11 either missing or removed. Overall Crohnbach's alpha for the scale was good 0.92. The SSL-d is used to calculate two different discrepancies: perceived lack of social support and perceived excess of social support received. To calculate the lack of social support the original scores are recoded as prescribed by Van Sonderen and summed. A high sum score means high discrepancy in support was perceived. The mean and SD of the lack of support scale were 42.83 and 9.67 respectively, with a range from 34 - 87. The alphas of the six sub scales were varied: everyday emotional interactions 0.77, emotional support by problem 0.84, appreciative support 0.72, instrumental support 0.73, social companionship 0.79 and informational support 0.75. The SSL-d is also used to assess the excess of social support. The original SSL-d scores are recoded, the items summed resulting in a score. A high score means an excess of support. Reliability was just acceptable 0.67. The mean and SD of too much support were respectively 0.62 and 1.48 with a range of 0 - 15.

Social support negative interactions
The negative interaction scale was mistakenly omitted at T1 and therefore administered at T2 and T3. The instrument gives an opportunity to determine the negative interactions the mothers perceive. The scale contains seven items with regards to negative interaction: experiencing: gave a cool reaction, a failed appointment, reproachful comments, inequitable or unjustly judged, reacting disapprovingly, reacting unreasonably, and interfering. There were 257 respondents who completed the scale at T2. One person refused. Three missed one question and the average of the other questions was inserted instead. A sum score is calculated: a high score means a lot of negative interactions. The range was 10 - 28, mean 26.66 and SD 2.59 with a good reliability 0.80.

6.6.2 Support of partner
Two items were included at T1 and T3 to assess the support received from husband or partner. The first item is whether help is received with the carrying out of chores and the second whether support is given with the care for the infant. Most respondents were very satisfied with their partner in relation to both types of support. Approximately 70.8% (for household chores) and 75.7% (caring infant) respectively were very satisfied with the support they received from their husband / partner. Only four women indicated they were ‘not really satisfied’ or ‘not satisfied’ with their partners' support with household chores or caring for the infant (1,2%). The mean for household chores was 4.60 range from 5 - 1 with a SD of 0.74 and for caring support the same range and a mean 4.68 with a of SD 0.67.

6.6.3 Maternal information-seeking
Maternal information seeking was assessed at T1, T2 and T3 with two instruments of 11 items. The first instrument asked whether the mother planned to use different information sources. These sources were hospital, general practitioner, well baby clinic, childcare and sources in their personal network (parents, girl friends, family) or books and other media sources. The second instrument asked whether she had actually used these sources. This instrument was chosen since it gave an opportunity to compare the results from this study with those from the different participating agencies. The items were taken from sub scales of an instrument that is nationally used to elicit information on customer's satisfaction of well baby clinic services to make comparison of items possible.
Expected Use of Information Sources
Each item gave the opportunity to distinguish five answer categories: yes certainly, yes, maybe, no, and absolutely not. The categories yes certainly and yes were added and percentages are given in rank order: well baby clinic (91.6), general practitioner (74.5), family and friends (67.5), information from books or magazines (66.1), parents (in law, 62.9), other visiting mother (49), child care centre (20.6), neighbour (19.7), hospital (6.7), finding one's own answers (13.6) and social worker (7.8). Factor analysis resulting in three sub scales: personal network, organisational sources and primary health care sources. Reliability was good 0.81. Reliability of two sub scales were acceptable: 0.68, 0.77. The reliability of the third sub scale Primary Health Care Sources was unacceptable 0.57 and discarded from further analysis.

Different information sources contacted
This instrument asked whether the women actually contacted one of the above mentioned information sources, and if so how often. The following percentages are again presented in rank order: Books or Magazines (66%), Looking for answers to one's one questions (57.4%), family and friends (57.3%), Well baby clinic (56.7%), Parents (in law 53.8%), visiting mother (33.1%), General Practitioner (25%), Hospital (19.2%), neighbour (14.8%), social worker (3.8%) and Day Care Centre (3.5%). The low number of women answering all questions (79) meant that this instrument was omitted from further analysis.

6.6.4 Maternal perception of infant temperament
The Infant Characteristics Questionnaire (ICQ) was developed primarily to assess the construct of 'difficult' temperament in young children. It is known in the Netherlands as the Baby and Toddler Temperament Questionnaire. This instrument measures parent’s perceptions of the infant, not necessarily the infant's behaviour as it might be objectively recorded. The results are limited to descriptions of the mother-infant relationships at T1 and T3. ICQ items gives choices from easy (one) via average (four) to difficult (seven). These scores were recoded to 1 difficult to 7 easy. Missing answers were separately indicated. The T2 analysis had 258 valid cases, with 22 one or two items missing. The average score of the other items was used as the score for the missing value(s) to complete the data set before further analysis took place. Reliability of the whole scale was good, .85. Comparison of the data revealed that persistence items were found in the same factor as found by Van der Boom (1988, see chapter 5). The T2 mean was 165.48, SD 20.02 and the range from 84 - 127. Babies perceived as difficult by the mother scored high.

6.6.5 Maternal perception of locus of control
The LOCO scale contains 22 items, eight of which focus on internal locus of control. The reliability of this scale was just acceptable 0.69 and the instrument was included in further analysis. A high mean score points to an increased external locus of control. The data from 14 respondents was excluded from the analysis due to the insufficient items scored.

Comments made on the questionnaire gave some insights in construct validity. Some respondents found the questionnaires long with too many items included. Comments were made on the researcher's need for information on income. Other mothers disputed questions on their own health or the way parenting skills were viewed, as the topic of research was the well baby clinic, its activities and use of facilities. 'The topic of investigation is the monitoring of the baby and the well baby clinic, not me'. Fifteen women had more specific comments on the locus of control instrument (T1), which they felt difficult to answer due to the age of their
infant at the time (six to eight weeks old). They qualified their statements with the fact that they did not know any young children in their direct environment to be able to form an opinion on the questions posed.

The α for the whole scale was 0.65. A factor analysis was performed. Two factors were extracted which discarded items with a loading of less than 0.40. Thirteen items distributed over two components were extracted (24.8% explained). The first component consists of seven (external) items. The items dealt with negative maternal perceptions of parenting. For example, 'I feel helpless when my child is not eating', 'When I hear other people talking about their parenting experiences, I feel often inadequate'. The mean and SD were respectively 9.16 and 2.14, range 4 - 21 with an α 0.65. The second component consisted of internal formulated items dealing with positive perceptions of parenting. It was discarded for further analysis, as its reliability was insufficient (0.06).

6.6.6 Accumulation of risk factors
The presence of a single risk factor present in the life of a first-time mother or her baby is not really important for the healthy development of an infant. The presence of an accumulation of 3 risk factors however, could be an important risk for a normal development of an infant. The accumulation of risk factors was calculated using 13 maternal and four infant indicators; teenager, maternal primary level education, GHQ score 3, alcohol use and smoking and the occurrence of a life-event during pregnancy, or belonging to different cultural background (migrant), (see table 6.5). High scores on external locus of control, perceived difficult temperament (ICQ) and low competence were also determined as risk indicators. Infant related indicators were complicated delivery, stay in incubator, premature birth and low birth weight (1500 gram or less). The risk scores were calculated in two stages: First those, which were collected in T1 and second those collected at T2.

6.7 Validity of outcome instruments
The outcome variables are categorised into four sections: (1) maternal mental and general health and infant health, (2) Maternal / Infant behaviour, (3) Maternal competence in parenting and (4) maternal satisfaction with the well baby clinic. In the following paragraphs information is presented on scores, range and standard deviations of the instruments used.

6.7.1 General Health Questionnaire and maternal and infant general health
The GHQ-12 was administered in T1 and 344 respondents provided the data for the analysis. The reliability was good 0.81 and the sum score ranged from 0 - 12, mean 9.76 and SD 2.49. Before analysis the GHQ score was recoded so that a low score denoted bad health. The general health questions for mother and infant were similar and were administrated at T2 and T3. There were 258 women who answered the maternal general health question and 260 gave an indication of their infant's health. The mean and SD were respectively 4.12 and 0.77 for maternal health and 4.52 and 0.65 for infant health. Two women with serious conditions started their treatment and were excluded from the analysis.
### Maternal moderating factors

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<th>Maternal moderating factors</th>
<th>MIM</th>
<th>Control I</th>
<th>Control II</th>
<th>Total</th>
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<td>8.4</td>
<td>37.0</td>
</tr>
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</table>

\(^1\) ICQ and Competence N = 258

#### Table 6.5 Percentages of total number of risk factors by intervention groups

### 6.7.2 Maternal competence in parenting

The maternal competence was administered at T2. The instrument consists of six items and showed a satisfactory reliability 0.72. The T2 result was based on 259 cases. Three items were mother and three were infant-focused. Items dealt with the way in which the mothers perceive their skills and knowledge in relation to parenting and to their satisfaction of their infant's development and behaviour. The six questions were: (1) Do you perceive parenting as difficult? (2) Are you satisfied about the manner in which you rear your child? (3) Are you satisfied with regard to your knowledge and skills necessary to care and rear your child? (4) Are you satisfied with the behaviour of your child? (5) Are you satisfied with the manner in which your child develops? (6) When comparing your child with children of others do you think your child is more difficult or easy to rear than your own? The scores were summed and gave an indication on maternal feelings of competence with regard to parenting. A low score denoted a low competence. Range was from 19 - 42, mean 34.17 and SD 4.90.

### 6.7.3 Maternal satisfaction with services organised by well baby clinics

The satisfaction with the well baby clinic was assessed using different instruments at T2. The first instrument consisted of 13 items dealing with the services of the nurse, the social paedi-
atrian and the duration and number of clinic visits. Reliability of the scale was acceptable 0.76. Mean was 46.34, range 23 - 54 and SD 4.96.

The second instrument, also at T2 dealt with activities connected to the well baby clinic services, which were either organised by the community-nursing agency themselves and or in co-operation with others. One scale dealt with the activities provided for mothers of young infants in three sections: (1) satisfaction with the services, (2) establishing which activities were used and (3) feedback on perceived results from these activities which made it easier to care for the infant. The reliability of the scale was insufficient to be used in further analysis.

Maternal expectation of topics for discussion in well baby clinics
Nine questions were asked at T1 concerning maternal expectations about the topics the mothers expected to discuss with members of the well baby clinic team. Answer categories were yes and no. The discussion topics were in order of importance: feeding 292 (84.1%), physical development 277 (79.8%), eating behaviour 217 (62.5%), sleeping 187 (53.9%), crying 182 (52.4%), lively infant 145 (41.8%), maternal reactions to infant’s behaviour 135 (38.9), maternal self-efficacy 91 (26.2%) and parenting 76 (21.9%). Reliability was 0.79. The instrument showed two factors explaining 50% of the variance. One item (discussion on food) did not exceed 0.40. This item was discarded from further analysis. The first factor dealing with specific infant behaviour consisted of three topics: infant’s eating behaviour, crying, and sleeping. Reliability 0.71, mean 4.12 SD 2.36. The second factors, dealing with maternal responses to the infant, consisted of physical development, parenting, lively infant, maternal reaction on infant’s behaviour and self-efficacy with reliability 0.72, mean 2.09 and SD 1.56. These expectations and subsequent information showed no real uptake of these services. These items were therefore disregarded in the further analysis.

Maternal expectations on members of the well baby clinics
Information on maternal expectations on what to expect from members of the well baby clinic team was collected at T1. Seven questions asked whether the mother expected the initiative to come from the team, whether she expected information and advice, an opportunity to discuss own topics or finding answers to questions with team members. Most (336 mothers) expected to get an opportunity to talk about her experiences (96.8%) followed by a discussion on maternal initiated topics (332, 95.7%), which would result in finding answers on questions (283, 81.6%). Two third of the first time mothers (235, 67.7%) expected the initiative to come from the team, whilst 224 (64.6%) expected also information and advice on related topics. No scale could be developed for further analysis, as the reliability was unacceptable 0.34.

Additional services organised by or in co-operation with the well baby clinic
The following activities were put forward with the actual number of mothers who indicated their use in brackets: MIM (34), baby massage (37), toy library (9), theme meetings (6), the open door clinic (89), a short infant care course (5), the nurse’s help-line (26), and the group clinic (3). Most mothers did not use these additional services. The respondents were then asked to indicate an answer on the next question only if they had participated in the activity. Some mothers did not heed this instruction. The number of mothers indicating the use of the activity is lower than those who gave feedback on the activity, except those using the help-line. Table 6.6a gives an overview of activities related to the well baby clinic and their use according to those responded.
Table 6.6a Use of activities related to the Well-baby-clinic Services

Feedback on used activities related to the well baby clinics
Relatively few women answered these three questions at T2. Respondents were asked whether participation in these activities were helpful in identifying needs, coping with parenting difficulties and seeking support when things were getting too much. Nine of the 33 mothers indicated that they coped better with parenting difficulties, 23 thought the activities helpful in identifying needs and 16 would seek help when needed. Eighty-two first-time mothers saw benefits from the activities but 40 mothers did not really see that these activities would help them to cope better, in identifying needs or in seeking help when needed, see table 6.6b.

Table 6.6b Benefits from using well-baby-clinic related activities

6.7.4 Maternal / infant behaviour
Maternal and infant behaviour consisted of four items: increased duration of breastfeeding, increased use of a drinking cup instead of a feeding bottle, the energy and macro nutrients intake according to national guidelines and the reaction of the infant to the inoculations.

Breastfeeding
At T1 mothers indicated whether they were breast or bottle-feeding their infant: 216 started with breastfeeding and 123 with infant milk formula with seven mothers refusing to answer. At T2 Factors 255 women participated in a nutritional survey by Van Buren (2000) in which 40
experimental mothers and respectively 157 (control I) and 58 (control II) mothers participated. Thirty-one (78%) of experimental mothers breastfed their infant as did 75% (N = 117) and 78% (N = 45) mothers from control groups I and II respectively.

**Infant food consumption**
Infant food consumption measurement was carried out at T2, when the infant was approximately 10 months old. Data collecting can be divided into two categories; collecting data at the time the mother is participating in the activity (prospectively), shortly past thereafter or collecting data in the distant past (retrospectively). For infant food consumption a 24-hour recall was used as method and all other items were administered by postal questionnaire (see also previous chapter).

No significant differences in infant energy and nutrient intake were found between the different maternal educational level groups and maternal age groups. The percentage of energy gained from protein was significantly higher in the experimental groups compared with control group I, whilst the energy gained from fat was significantly lower in the experimental group compared with control group II. No other significant differences were found between the experimental and two control groups. Although no significant differences existed in background variables between the three groups, the infants in the experimental group tended to be somewhat older. This may explain why this group had a higher percentage of energy gained from protein, compared with the two control groups.¹⁷⁰

**Drinking cup use**
Question on drinking cup used were part of the nutritional survey at T2. No significant differences were found in drinking cup use between the three groups (p < 0.405), for educational level (p < 0.10), maternal age groups (p < 0.84) and the infants’ age group.¹⁷⁰

**Inoculations against infectious childhood diseases**
Inoculations information was gathered at T2 and T3. There were no differences between the three groups in completing the full I to IV DKTP inoculations against infectious childhood diseases, nor in the way the infants reacted to the DKTP and BMR. Mothers aged 17 - 24 reported signficantly more reactions from their infants (high temperature and crying) after receiving the DKTP I to IV than those in age groups of 25 and over.

### 6.8 Conclusion on validity of design and instruments

Research in a field setting is fraught with difficulties and unexpected events. This statement is very true. The recruitment and subsequent number of first-time mothers in the experimental group posed a serious problem. The fact that the instrument, which measured ‘problem solving capacity’ / ‘empowerment’ was not valid was very disappointing. The study also found a low response of women who actually contacted or used the different information sources. As a result these two instruments had to be omitted from the analysis model.
Chapter 7

Results

7.1 Introduction

The purpose of this evaluation study as mentioned in chapter 1 was to determine impacts of the MIM programme in relation to health, mental health and nutrition whilst examining the contribution of social support and the support of visiting mothers for first-time mothers during the first 15 months of their infant’s life. The results of the quasi-experimental cohort study are presented in this chapter. This is also an exploratory study aimed at the development of a specific theoretical model for the MIM programme, which is based on existing theoretical ideas, (see chapter 4).

In order to answer the questions posed in chapter 5 it was appropriate to develop an analysis framework. As described in chapter 5, the questionnaires of T1 and T2 were developed to gather baseline information. T3 data provided the post-test data. Baseline and post-test data were used to determine any differences that occurred between and within the three groups using the analysis model presented in chapter 6. It was expected that MIM mothers, in comparison with non-MIM mothers, would score statistically better at the post-test on all of the four short-term effects (outcomes).

1 Maternal and infant health indicators (GHQ and general health mother and baby).
2 Maternal / infant behaviour (increased duration of breastfeeding, more cup use, infants’ intake of macronutrients according to national guidelines, inoculations uptake and the infant’s reaction(s) to the inoculations).
3 Maternal competence in parenting.
4 Maternal satisfaction with the well baby clinic.

In this chapter we present the following information. Section 7.2 discusses the timeframe of the three measurements. In 7.3 the framework used for analysis is described and the differences between and within groups are presented. First presented are the outcome and mediating factors from T1 and T2. Then the result of an analysis on dropping out of the study by respondents is presented. The impact of MIM on maternal and infant outcomes is described in 7.4, followed by the results on maternal and infant behaviour in 7.5. The last paragraph, 7.6, brings together information presented in this chapter and draws conclusions. Finally, (7.7) an exploratory theoretical model for the MIM programme is presented.

7.2 Time frame and measurements

In chapter 5 the reasons for not taking all the baseline measurements at T1 were given. Firstly, if all instruments to measure outcomes had been included in the first questionnaire, it would have been too extensive. The questionnaire had to be reduced to get a sufficient response. Secondly, several variables could only be measured some time after the birth (breastfeeding
and inoculations). Thirdly, maternal information seeking behaviour (use of well baby clinic activities and the MIM Programme) were not yet known as recruitment into the MIM programme was often after the administration of the first questionnaire took place. Finally, at T1 self-assessment on competence with parenting and satisfaction with the well baby clinic were difficult for the mothers as all infants were first-born children.

The choice was made to measure all potentially moderating factors (except income) and the baseline of one outcome instrument maternal mental health (GHQ-12) at T1. Maternal mental health is one of the most important outcome factors of the study. At ten months (T2) it was felt that all the above reasons would be neutralised and it coincided with the time to measure the cross sectional questions on maternal fat and infant food consumption, and cup or bottle use. All outcome factors, excluding breastfeeding, cup use, energy and macronutrients, and mediating instruments were measured at T3. The mediating factor locus of control was then excluded as the Cronbach's alpha was below acceptance level (< 0.65). For an overview of measurement of each instrument see chapter 5.

Because of the timing of the measurements, the only effect that could be measured over a period of 15 months was maternal mental health. Satisfaction with the well baby clinic, maternal competence in parenting and the health indicators effects could only be measured over a six-month period (T2 - T3). Given that a true baseline had not been established for these outcomes, the full impact of the mediating and moderating factors could not be established as possible effects could have occurred before the T2 measurement. What T2 actually measured was the sum of the baseline plus any impact of the programme up to ten months. As a result, the difference between the measurements at T2 and T3 is probably smaller than the effect of the programme, with the distinct possibility of not detecting any significant difference over this six-month period. This must be borne in mind when evaluating the results.

To overcome this problem, different models were generated from multiple regression analysis with T3 data included, as well as the models of the differences between measurements at T1 and T3 and measurements between T2 and T3. Regression analyses were carried out on each measurement from T1, T2 and T3 data separately. The result of the analyses using differences between T1 and T3 and the differences between T2 and T3 provide information on differences per mother over time, whilst those from each of the measurements separately provide information at the time. The regression analysis predicts the impact (increase or decrease) of factors on the outcome variable. The resulting model identifies significant and insignificant factors and then estimates coefficients, which express the change in, for instance, competence that would be produced by an increase of one unit in, for instance, birth weight, holding all other factors constant. These models are presented and compared. Changes between models across time will be noted, described and discussed. The T3 regressions explain the differences between mothers at T3, but these differences may have been present from the beginning. Therefore, these regressions are compared with baseline regressions.

The differences between measurements at T1 and T3, and at T2 and T3 are also calculated. These long-term effects are measured for each mother. Again this was analysed by multiple regression and the resulting model was used to compare the changes between the separate T1, T2 and T3 models. For instance, if finding 'a difficult delivery' in the difference regressions at a significant level; it means that a difficult delivery is still having an active effect causing a mother who had a difficult delivery to diverge further from other mothers even more than 10
months after the birth. The impact of a 'difficult delivery' before the baseline is already picked up in the baseline score. The results of these comparisons are presented, discussed and conclusions drawn.

The results of the multiple regression analysis are presented in tables according to a standardised stepwise inclusion of predictors. Results are presented with MIM first (if present in model), then the moderating factors Mother: age, type of confinement, cigarette smoking, alcohol use, type of family; and Infant: gender, birth weight, temperament. Mediating factors: Social factors are next (feeling a lack or too much support, general social interactions, receiving negative comments and the instrumental support by partner with household and caring activities).

7.3 Analytical framework

This section starts with a description of the methods and analysis used to determine these differences between and within groups on other outcome variables at T1 and T2 (7.3.1). An explanation is also given on how different types of 'dummies' were treated in the analysis. In 7.3.2, all T1 results relating to question 2 are presented first. The analyses were carried out in two steps: first moderating variables on their own, followed by the analyses using both moderating and mediating variables. These were used to determine whether there were differences between groups regarding 'maternal mental health'. The origins of the differences are examined and the results presented in 7.3.3. A description of the method of analysis used to answer question 3, together with the results, are presented in 7.3.4.

7.3.1 Methods used to analyse for differences between and within groups

To detect any differences between groups, a one-way analysis of variance is often used for analysing data from a one-factor between-subject experiment. The test assumes, however, that the data are normally distributed and that there is homogeneity of variance. In this thesis, two types of test were used: ANOVA, (see chapter 6) and non-parametric tests. Since most of the variables were not normally distributed, non-parametric methods are considered more reliable as with these tests the distribution of the variables concerned is not required to be normal. The Kruskall Wallis test was used to detect differences between groups. The observations are combined and ranked, with the average rank assigned in the case of ties. If the populations are identical in location, the ranks should be randomly mixed between samples. The number of times a score from group 1 precedes a score from group 2 and the number of times a score from group 2 precedes from group 1 are calculated.

Methods used for differences within groups

To show differences within groups over time, a rank sign test was used to compute differences between two variables for all cases. It classifies the differences as positive, negative or tied. If the two variables are similarly distributed, the number of positive and negative differences will not differ significantly. The Wilcoxon rank test is used to detect differences within groups. This test considers information about both the sign and the differences and the magnitude of the differences between pairs and is more powerful than the sign test.

Factors explaining the difference

To analyse the reason for the differences, multiple regression methods were used, which included all relevant moderating and mediating factors. Multiple regressions can identify any
differences remaining between the experimental and control groups once participants have been 'standardised' in term of moderating and mediating variables. The multiple regression estimates the 'ceteris paribus' impact of each variable on the outcome, that is the impact of the variable whilst holding all other variables constant. Thus, we can see whether MIM mothers were different once we have controlled for differences in other moderating and mediating variables.

The multiple regressions were executed using an intelligent stepwise regression procedure. The researcher begins with the most general specification (i.e. one that include all potentially relevant variables) and then tries to eliminate variables one at a time to come to the most significant and/or the most meaningful model, which supplies information about the impact of individual factors on the dependent variable. Regression generates an equation for predicting a value of a target (dependent) variable.

Ordinal regression is used to process answers given in the form of a ranking of the outcome according to a particular characteristic or dimension. For example, the respondent may be asked to categorise symptoms as either as 'very good', 'good', 'sometimes good, sometimes bad', 'not so good' or 'bad'. The answer is then ranked (according to increasing severity) as 0 = 'very good', 1 = good, etc. The answer is described by one variable, called severity, which may takes the values 0, 1, 2 or 3. It is hypothesised that the differences in rankings between respondents can be explained by a number of factors. Ordinal regression estimates the importance of these factors (via a regression coefficient) and their significance (with a z-test and its corresponding p-value). A standard multiple regression approach cannot be used because the variable to be explained, namely a set of rankings, is not a continuous, cardinally measured variable. This is because the difference between a 'good' and 'sometimes good, sometimes bad' reaction depends on perceptions that cannot be objectively compared between respondents. Therefore, it is impossible to quantify severity beyond an ordinal ranking, and the rankings summarised by this variable must not be treated as cardinal measurements, i.e. moderate (= 2) is not necessarily twice as severe mild (=1).

In addition to the coefficients for each factor and its significance, ordinal regression evaluates the boundaries between each ranking, in order to see whether they are significant. For example, if the boundary between 'good' and 'sometimes good, sometimes bad' is not significant, this means that the factors chosen cannot effectively discriminate between the individuals who answered 'mild' and those who answered 'moderate'. Why this occurs must be interpreted by the analyst: perhaps the respondents did not have a clear idea of the difference intended in the questionnaire between 'mild' and 'moderate', or perhaps additional factors that could separate out these two groups successfully have not been included in the regression.

In this chapter, the terms 'final' model and 'exploratory' model are used. A model in this context is a relationship between an 'outcome' variable (dependent variable) and those variables (factors), which influence the outcome variable. All factors with a p-value of less than < 0.10 are retained in the exploratory regression model as they may add important information for the development of the MIM programme. In the final regression model, only variables with a p-value < 0.05 are considered to be significant in predicting a value of the target variable.
Dummies
Two types of 'dummy' variables are used: (1) dummy for 'missing values', and (2) dummy for categories of ordinal data.

Dummy for missing data
A dummy 'missing variable' was used wherever a continuous variable to be used as an explanatory variable, had a missing value. If the percentage of missing values was less than 15% the average score of the variable was entered. This occurred when mothers did not answer the question, because the items could not be answered, or they deemed the questions irrelevant. For instance, when asked to assess their infants' temperament, most mothers who did not answer indicated on the questionnaire that they had great difficulty answering, even when asked to think of any older child they might know. They justified their inability to envisage the situation by referring to the young age of their infant (about 10 months) coupled with the fact that they knew no toddlers or pre-school children within their social networks. Other mothers wrote that they thought the research was about the well baby clinic and not about them: they deemed the question irrelevant.

Before presenting the results of the study it is necessary to describe how dummies were interpreted in the analysis. If both the coefficient of a continuous variable and the coefficient of the dummy denoting the missing values for this variable were significant and had the same sign, a calculation was done to determine whether the average score for the missing cases was different from the average for those who answered this question. The mean of the continuous variable was multiplied by its coefficient. If the result of the calculation was higher than the dummy coefficient, then this means that the average score of those missing would have been lower. The average score would be higher if the result of the calculation was lower than the dummy coefficient. If both factor and dummy coefficients were negative with only the dummy insignificant it was deemed that non-participants' scores were not different from those in the base group. If the dummy coefficient was significant and positive it was deemed that the non-participants would have given higher than average scores than those would in the base group. Possible differences detected with the use of dummies are dealt with when the results of the individual regression analysis are presented.

Use of dummy for categories in ordinal variables
Dummies were also used to denote the different categories of maternal and infant health and the social support categories relating to the partner's household and caring support. Reasons for possible differences between a significant and insignificant dummy coefficient were also sought to find out whether any significant difference existed between the two dummy coefficients. Two categories of the variable (such as 'reasonably dissatisfied' and 'dissatisfied' with partner's household support activities) were combined to test whether the difference was significant between the dummy coefficients. The regression was run again with this combination. The initial model with the separate values for the variable and dummy is called the unrestricted model. The new model with the combination is called the restricted model. Using the likelihood ratio test it is then possible to test differences between the dummy coefficients. The test statistic is a $\chi^2$ with degrees of freedom equal to the number of categories that were combined and tested at the 5% significant level.
7.4 Differences between and within groups at baseline

Before the effects of MIM can be determined, two important questions need to be answered.
1 Were there significant differences between the three groups at the baseline of the study?
2 Are participants who dropped out of the evaluation significantly different from those who stayed in?

The Kruskall Wallis test showed significant baseline differences between groups regarding the T1 outcome variable 'maternal mental health' (p = 0.053) and for the mediating variable 'lack of support' (p = 0.000). Two linear regressions provide the answer to question 1 on whether MIM participants differ significantly at the baseline when compared with those in the control groups after standardising the other characteristics of the mother. First, the results of 'maternal mental health' and then those of 'lack of social support' are presented.

Differences in maternal mental health at baseline

Control group II had the lowest ranking (worst, 150.85) for 'maternal mental health' and control group I had the highest (best, 181.18). The mean rank of the experimental group was 170.01 Kruskall Wallis: (2 5.86, d.f.2, p = 0.053. About 12 % (41) of all mothers scored 6 or higher on the GHQ - 12 scale, whilst 'healthy mental health' is defined as ranging between 0 - 2. The common 'maternity blues' that is associated with hormonal changes in progesterone, oestradiol and cortisol and rising prolactin concentrations usually occurs only during the first 14 day postpartum.

Explaining the differences in maternal mental health

Intervention group status had no significant relation with mental health at baseline. This is understandable, since at T1MIM has had no time to make an impact. What we learn is that, once other differences between mothers are controlled for, MIM mothers are indistinguishable from other mothers regarding mental health at the beginning of the study.

In the final regression model four factors were found to having a significant relationship with maternal mental health. Infant birth weight had a significant positive relation with maternal mental health. The three other factors, being a single parent, being dissatisfied with partner's household support activities and perceiving a lack of social support had a significant negative relation with maternal mental health, (R^2 0.146, adj. R^2 0.136, F (4,339) = 14.52, p = 0.000; see table 7.1).

<table>
<thead>
<tr>
<th>Method: Linear regression</th>
<th>Unstandardized Coefficients</th>
<th>N = 343</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range: 0 - 12 (0 = worst, 12 = best)</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Constant</td>
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<tr>
<td>Birth weight (range 1.1 - 4.9kg.)</td>
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</tr>
<tr>
<td>Single parent family (= 1)</td>
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<tr>
<td>Dissatisfied with partner's household support (= 1)</td>
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<tr>
<td>Lack of social support (range 34 - 87)</td>
<td>-0.06</td>
<td>0.01</td>
</tr>
<tr>
<td>R^2 0.146, adj. R^2 0.136</td>
<td>F; (d.f.4,339) = 14.52, p = 0.000</td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1 Moderating and mediating factors influencing maternal mental health at T1 (Final model)
Differences in lack of support at baseline
Further analysis on the factor lack of support found a significant difference using the Kruskall Wallis test. The experimental group had the highest (worst difference between groups, 223.52) and control group I the lowest (least, 156.02) ranking for T1 measurement of 'lack of support', ($\chi^2$ 16.79, d.f.2, p = 0.000). This means that one of the inclusion criteria for entering the MIM programme as set by the community-nursing agencies was met; MIM was reaching mothers who felt they had insufficient social support.

Explaining the difference of lack of support
No exploratory regression model could be generated. The final regression model on lack of social support found four significant factors. Having a foreign born grandmother was the only positive significant factor in this model. The other significant factors were all related negatively to social support: expecting social support interactions and being satisfied with the partner’s caring and household activities.

<table>
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<th>Method: Linear regression</th>
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<td>Std. Error</td>
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</tr>
<tr>
<td>Incubator (= 1)</td>
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<tr>
<td>Single parent (= 1)</td>
<td>4.53</td>
<td>2.65</td>
</tr>
<tr>
<td>Foreign grandmother (= 1)</td>
<td>3.43</td>
<td>1.57</td>
</tr>
<tr>
<td>Social support interactions (range 44 - 127)</td>
<td>-0.21</td>
<td>0.34</td>
</tr>
<tr>
<td>Too much social support (range 0 - 15)</td>
<td>0.57</td>
<td>0.32</td>
</tr>
<tr>
<td>Satisfied with partner's caring support (= 1)</td>
<td>-3.02</td>
<td>1.36</td>
</tr>
<tr>
<td>Satisfied household support, (= 1)</td>
<td>-3.84</td>
<td>1.26</td>
</tr>
</tbody>
</table>

$R^2$ 0.225, adj. $R^2$ 0.209  F (7,327) = 13.59, p = 0.000

Table 7.2 Moderating and mediating factors influencing maternal perception of lacking social support at T1 (exploratory model)

Having a decrease of social support interactions, or being less than satisfied with the partner’s caring (N = 28), or household support activities (N = 89) increased significantly the perception of lacking support. Given that a lack of social support has an important relationship with the mother’s mental health at T1, it means that the factors identified by this regression are indirectly contributing to the mother’s mental state.

There were some significant differences found between the three intervention groups at T1 with the Kruskall Wallis test for maternal mental health and lack of support. Results in this section showed that no significant differences existed between MIM participants compared with those participating in the two control groups regarding the outcome variable maternal mental health once other factors had been taken into account. When social support from a wider social network is lacking, mothers’ mental health could be at risk. The role of partners giving instrumental support is paramount as lack of support of the partner with caring (N = 47) and household activities (N = 73) had a significantly negative relationship with mental health.
Conclusion and discussion on within and between group differences at T1
There were some significant differences found between the three intervention groups at T1 with the Kruskall Wallis test for maternal mental health and lack of support. Results in this section showed that no significant differences existed between MIM participants compared with those participating in the two control groups regarding the outcome variable maternal mental health once other factors had been taken into account. When social support from a wider social network is lacking, mothers' mental health could be at risk. The role of partners giving instrumental support is paramount as lack of support of the partner with caring (N = 47) and household activities (N = 73) had a significantly negative relationship with mental health.

As stated in previous chapters the baseline for the outcomes factors ‘maternal competence with parenting’ and ‘being satisfied with the well baby clinic’ and the mediating factor ‘negative social interactions’ were measured at T2.
Positive differences on the two outcome variables ‘maternal competence with parenting’ ($\chi^2$ 18.79, d.f.2, $p = 0.000$) and ‘satisfaction with the well baby clinic’ were found between the three groups with the Kruskall Wallis test ($\chi^2$ 7.94, d.f.2, $p = 0.019$), and on the mediating variable ‘negative interactions’ ($\chi^2$ 8.93, d.f.2, $p = 0.007$). No differences were found on maternal and infant general health, which were the other outcome variables. Developing meaningful T2 models for maternal and infant general health was impossible since for each of the McFadden pseudo R square dropped to an unacceptable level, 0.091 and 0.034 respectively. The categories of maternal and infant health could not be clearly defined.

Differences in maternal competence
With regard to maternal perception of competence, the experimental group had the lowest (84.20) and control group I the highest-ranking (140.88). The difference between the experimental group and control group II (132.91) was -48.71. This meant that experimental mothers felt significantly less competent in comparison with those in control group II. There were no significant differences between the experimental group and control I and between control group I and control group II.

Explaining the differences in maternal competence with parenting at baseline (T2)
Eight significant factors were found in the final regression model. Participating in MIM related significant and negatively with maternal competence. Also after controlling for moderating and mediating factors, participants in MIM at T2 still had a competence score that was on average 3 points lower than non-MIM mothers.

The significant factors in the final regression model could be classified into two categories. The first category deals with positive impacting factors on competence such as a normal progressing pregnancy, having a baby girl and having a child with an easy temperament. A short stay hospital confinement following a normal pregnancy may take place for one of two reasons - (1) it is planned by women who were in control - in order words they had planned the stay for convenience and as a precaution for unexpected complications and (2) as a totally unexpected event. Due to a decision of the midwife in the later stages of labour to play it safe, the confinement itself would instead take place in hospital. This occurs when, for instance, the labour process is prolonged, and contractions stop, or the infant becomes distressed. The second category deals with social support items having a negative impact on feeling competent with parenting. These all relate to social support. Having an increase in negative comments from their partner, or from other members of their social network, or feeling 'reasonably' to
'somewhat dissatisfied' with the partner's caring support may point to the fact that these mothers need help in finding practical solutions or reassurance with their parenting skills. The exploratory regression model identified additional three factors: smoking cigarettes and having a modest glass of alcohol and separate categories of satisfaction with partner’s caring support activities, (see table 7.3). Smoking and the partner's caring support activities were having negative, whilst drinking a modest glass of alcohol had a positive influence on the mothers' perception of maternal competence with parenting.

<table>
<thead>
<tr>
<th>Method: Linear regression</th>
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<tr>
<td>Experimental group (= 1)</td>
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<tr>
<td>Cigarette smoking during pregnancy (range 1 - 25 per day)</td>
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<tr>
<td>Alcohol during pregnancy (range 1 - 5 glasses per week)</td>
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<td>0.44</td>
</tr>
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<td>Unplanned hospital confinement (= 1)</td>
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<td>Planned short stay confinement (= 1)</td>
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<td>Gender infant (1 = girl)</td>
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<td>Infant temperament (range 84 - 127)</td>
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<tr>
<td>DM temperament (= 1)</td>
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<td>Too much social support (range 0 - 15)</td>
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<td>'Reasonably' and 'somewhat satisfied' with partner's caring support (= 1)</td>
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<td>'Somewhat', 'reasonably dissatisfied' and 'dissatisfied' with partners household support</td>
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R² 0.524, adj. R² 0.498  F (d.f.13,240) = 20.30, p = 0.000

Table 7.3 Moderating and mediating factors influencing maternal perception of competence with parenting of first-time mothers at T2 in the MIM study (exploratory model)

The predicting value of this model is substantial, with approximately 50% of the model explained.

Conclusion and discussion maternal competence
Members of the experimental group scored lower on feeling competent with parenting even when other relevant factors were taken into account. Being 'reasonably satisfied' with the partner's role was negatively related with the mother's competence. Having generally too much social support seems to be one of the most important negative factors in feeling com-
petent with parenting. Mothers may find themselves asking others how they think they were doing, but what they want is reassurance and not necessary advice or opinions. Time to reflect and judge their own behaviour is needed, in order to get to grips with a new situation. Too much support may thus give rise to mothers feeling overwhelmed or sometimes even incompetent.

Differences between and within group on satisfaction with the well baby clinic
Control group II had the highest ranking for the 'satisfaction with the well baby clinic' (140.77), whilst the experimental group had the lowest (100.88). This means that the experimental group was least satisfied with the well baby clinic.

Explaining the differences of satisfaction with the well baby clinic at T2
The final regression model found two factors: having completed third level education and being less than satisfied with the partner's caring support activities both decreased significantly the feeling of satisfaction with the well baby clinic. The explained total variance of the exploratory regression model was $R^2$ 0.061 adj. $R^2$ 0.053, $F$ (d.f.2, 235) = 7.70, p = 0.001; see table 7.4.

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<td>Std. Error</td>
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<tr>
<td>Constant</td>
<td>47.34</td>
</tr>
<tr>
<td>Third level education (= 1)</td>
<td>-1.62</td>
</tr>
<tr>
<td>Satisfied with partner's caring support (= 1)</td>
<td>2.39</td>
</tr>
</tbody>
</table>

Table 7.4 Moderating and mediating factors influencing the satisfaction with the well baby clinic at T2 (final model)

Conclusions and discussion on satisfaction with the well baby clinic
It should be kept in mind that the T2 results of maternal satisfaction with the well baby clinic are the sum of the baseline at six weeks and the previous ten months when the questionnaires were first administrated. The factors 'having completed third level education' and 'being less than satisfied with the partner's caring support activities' showed a significant negative relation with satisfaction with the well baby clinic.

Differences between and within groups on negative social interactions
The experimental group had the highest ranking for 'negative social interactions' (158.05) and control group I the lowest (119.30). This means that the mothers from the experimental group perceived to receiving more negative comments from members of their social support network than those in control group I and II.

Explanation of differences in negative interactions (T2)
Six negative significant factors were found in the final regression model. The first category deals with having finished third level education, smoked during pregnancy, and having experienced an unplanned short-stay delivery in hospital. The second category deals with being less than somewhat satisfied with the partners caring support activities, feeling a lack of social support, or having too much social support. In the exploratory regression model one more fac-
tor was identified, social support interactions, which was at nearly 9% significance level. The final regression model ($R^2 0.245$, adj. $R^2 0.224$, $F; (7,246) = 11.41$ $p = 0.000$; see table 7.5).

<table>
<thead>
<tr>
<th>Method: Linear regression</th>
<th>Unstandardized Coefficients</th>
<th>N = 253</th>
</tr>
</thead>
<tbody>
<tr>
<td>Range: 7 (worst) - 25 (best)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Constant</td>
<td>32.06</td>
<td>1.29</td>
</tr>
<tr>
<td>Third level education (= 1)</td>
<td>-0.66</td>
<td>0.30</td>
</tr>
<tr>
<td>Cigarettes (range 1 - 25)</td>
<td>-8.43E-02</td>
<td>0.04</td>
</tr>
<tr>
<td>Unplanned short stay delivery (= 1)</td>
<td>-1.07</td>
<td>0.33</td>
</tr>
<tr>
<td>Less than somewhat dissatisfied with partner’s caring support (= 1)</td>
<td>-2.59</td>
<td>1.25</td>
</tr>
<tr>
<td>Lack of social support (range 34 - 87)</td>
<td>-9.48E-02</td>
<td>0.02</td>
</tr>
<tr>
<td>Too much social support (range 0 - 1)</td>
<td>-0.30</td>
<td>0.09</td>
</tr>
<tr>
<td>Social support interactions (range 44 - 127)</td>
<td>-1.946E-2</td>
<td>0.01</td>
</tr>
</tbody>
</table>

$R^2 0.245$, adj. $R^2 0.224$ $F; (7,246) = 11.41$ $p = 0.000$

Table 7.5 Moderating and mediating factors influencing the negative social support interactions of first-time mothers at T2 (exploratory model)

Conclusion and discussion negative social interaction
No difference was found between MIM mothers and the mothers in the two control groups once other conditioning factors were accounted for. The model is important for the delivery of the MIM programme. Providers need to be sensitive in finding a right balance of social support for mothers lacking that support.

Overall conclusion and discussion on within and between group differences at baseline
Paragraph 7.4 provided information on the baseline differences within groups and between the experimental group and the two control groups. There were differences between MIM and the two control groups for ‘feeling competent with parenting’, with MIM mothers scoring competence less than those in the two control groups. No differences were found on ‘lack of social support’ and ‘maternal mental health’ factor. The differences found between groups were investigated to show the origin of these differences in the whole sample. Social support either from the interactions with members of the wider social network or those provided by the mother’s partner seems to be an important significant factor for all outcomes determined so far.

7.5 Dropping out of the study between T1 - T3

The second and last question in this section deals with dropping-out of the study between T1 and T3. Possible reasons were sought why mothers dropped out of the study (see also chapter 6). A dichotomous choice model was developed to examine whether one could predict why mothers dropped out of the study between T1 and T3. This model is based on a logistic regression, which is useful for situations in which one wants to be able to predict the presence or absence of a characteristic or outcome based on values of a set of predictor variables. It is suit-
able for models where the dependent variable is dichotomous. Logistic regression coefficients can be used to estimate odds ratios for each of the independent variables in the model. The mothers who dropped out of the study (assigned ‘1’) were compared with the mothers who finished the study (‘0’). Independent T1 variables were: moderating variables (age, maternal education level, foreign born grandmother, one parent family, infant’s birth weight) and mediating variables (locus of control, social support interactions, too much social support, lack of social support, and negative interactions during discourse with members of the maternal social network). Partner’s support with household and caring activities was also entered. Finally, the outcome variable maternal mental health was included.

About 28% of the drop out of participating mothers was explained after logistic regression using the pre-test data ($\chi^2$ Model 26.34, d.f.5, $P = 0.000$; see table 7.6a).

<table>
<thead>
<tr>
<th>Method: Logistic regression</th>
<th>Unstandardized Coefficients</th>
<th>Participants still in T3: N = 221</th>
</tr>
</thead>
<tbody>
<tr>
<td>Overall correct percentage: 64.1%</td>
<td>Participants dropped-out between T1 - T3: N = 124</td>
<td></td>
</tr>
<tr>
<td>B</td>
<td>Std.Error</td>
<td>Wald</td>
</tr>
<tr>
<td>MIM (= 1)</td>
<td>-0.70</td>
<td>0.40</td>
</tr>
<tr>
<td>Unplanned hospital delivery (= 1)</td>
<td>0.70</td>
<td>0.31</td>
</tr>
<tr>
<td>Planned hospital delivery (= 1)</td>
<td>0.86</td>
<td>0.32</td>
</tr>
<tr>
<td>Maternal age at birth of infant (17 - 40 yr.)</td>
<td>-0.06</td>
<td>0.03</td>
</tr>
<tr>
<td>Single-parent family (= 1)</td>
<td>-1.31</td>
<td>0.59</td>
</tr>
<tr>
<td>Constant</td>
<td>4.53</td>
<td>1.52</td>
</tr>
</tbody>
</table>

$\chi^2$ Model 26.34, d.f.5, $P = 0.000$

Table 7.6a Factors explaining the dropping-out from the MIM study between T1 and T3
Dependent variable Dropped out = 1, stayed in = 0

Five variables in the regression model were significant in explaining the probability of dropping out. What is striking is that mothers with a hospital delivery are more likely to drop out. Perhaps some of these mothers are attending the hospital outpatient department instead of the well baby clinic, but also possible is that other factors are in play. Factors that decreased the probability for dropping out of the study were being of a younger age, a single parent and participation in the MIM programme. Only 28% of the cases dropped out were correctly predicted, see table 7.6b.

<table>
<thead>
<tr>
<th>Observed</th>
<th>Predicted</th>
<th>Participants dropped-out between T3 and T1</th>
<th>% Correct predictions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participants dropped-out between T1 and T3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Still in T3</td>
<td>Drop-outs</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Still in T3</td>
<td>194</td>
<td>27</td>
<td>87.8</td>
</tr>
<tr>
<td>Drop-outs</td>
<td>89</td>
<td>35</td>
<td>28.2</td>
</tr>
<tr>
<td>Overall percentage</td>
<td></td>
<td></td>
<td>66.4</td>
</tr>
<tr>
<td>Cut value is 0.005</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.6b Overview participants in the study and those who dropped out of the study N = 345

112
This indicates that dropping out is also strongly influenced by random factors, such as moving house.

7.6 Results of MIM at T3 - baseline

In this section effects of the MIM programme are presented, using data obtained with the differences calculated from T3 minus baseline on maternal mental health, maternal and infant general health, maternal competence with parenting and satisfaction with the well baby clinic. Exploratory regression models are presented from data obtained by deducting the baseline scores from T3 to calculate the differences of scores over time for each outcome ('longitudinal data'). Each section finishes with a short statement on the impact of MIM on the outcome factor. The paragraph ends with some conclusions.

7.6.1 Maternal mental health
No significant differences between groups for mental health were found using the Kruskall Wallis test at T3 ($\chi^2$ 3.41, d.f.2, p = 0.182). The experimental group had the lowest (90.77) and control group I the highest ranking (112.07), whilst control group II score was 107.41.

The mean mental health scores increased over time in all three groups, denoting an increase in their average mental health. The Wilcoxon rank test was significant for all groups taken together, but when groups were individually tested only significant differences for both control groups were found. The experimental group increased from 9.45 to 9.94 (difference 0.49, $Z = 0.183$, p = 0.855). Control group I increased from 10.09 to 10.47 (difference 0.38, $Z = 2.586$; p = 0.010) and control group II had the largest increase: from 9.05 to 10.26 (difference 1.21, $Z = 2.966$, p = 0.003), see for standard deviations appendix 1, table 7.1. It should be noted that the size of the difference for the experimental group is larger than that of control group I. The reason why the improvement for the experimental group was not significant could be explained by the relative small size of the experimental group in comparison to control group I (MIM = 31, control group I 138).

Changes in maternal mental health (T3 - baseline)
The long-term analysis commenced using the differences of T3 - baseline. An explanation was given about the controlling effect of including the baseline scores in the longitudinal analysis. Longitudinal analysis is interesting as it gives an opportunity to investigate the differences, increase or decrease, of each participant over time. Thus, the effect of MIM can be established over time.

Explaining the 'longitudinal' differences maternal mental health
The final regression model found three factors (Adjusted R$^2$ 0.446, F; (5, 207) = 35.10, p = 0.000; see table 7.8b).

The mothers' mental health perception was negatively influenced by a lack of support. That was plausible, as this was also present in T1 and T3 with a similar relationship. The factor being less than 'reasonably satisfied with the partner's household support activities' was found to be significantly negatively related for maternal mental health. The relation of household support with mother's mental health in the T1 model of mental health was replaced by the relationship of being 'dissatisfied with caring support activities provided by
Table 7.8b Moderating and mediating factors influencing differences between maternal mental health score T3 and maternal mental health score T1 (exploratory model)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>N = 212</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Method:</strong> Linear regression</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Range:</strong> 0 - 12 (0 = worst, 12 = best)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Constant</strong></td>
<td>11.98</td>
<td>2.00</td>
</tr>
<tr>
<td><strong>Maternal mental health T1 (range 0 - 12)</strong></td>
<td>-0.90</td>
<td>0.07</td>
</tr>
<tr>
<td><strong>Birth weight (range 1.1 - 4.9 kg.)</strong></td>
<td>-0.53</td>
<td>0.31</td>
</tr>
<tr>
<td><strong>Foreign born grandmother (= 1)</strong></td>
<td>-0.97</td>
<td>0.59</td>
</tr>
<tr>
<td><strong>Infant's temperament (range 84 - 127)</strong></td>
<td>0.01</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>DM infant's temperament (= 1)</strong></td>
<td>3.35</td>
<td>1.96</td>
</tr>
<tr>
<td><strong>Less than reasonable satisfied with</strong></td>
<td>-1.22</td>
<td>0.57</td>
</tr>
<tr>
<td><strong>partner's household support activities (= 1)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Negative social interactions (range 7 - 21)</strong></td>
<td>0.11</td>
<td>0.06</td>
</tr>
<tr>
<td><strong>Lacking social support (range 36 - 87)</strong></td>
<td>-0.04</td>
<td>0.01</td>
</tr>
<tr>
<td><strong>Adjusted R²</strong></td>
<td>0.501 (8, 204) = 27.616, P = 0.000</td>
<td></td>
</tr>
</tbody>
</table>

The partner’. Having a foreign born grandmother was another result having a negative relation with maternal mental health. This relation was not present in the T1 model, but was prominent in the T3 (p = 0.025) and the difference between T3 - T1 exploratory regression model (p = 0.101).

It should be kept in mind that with the term ‘migrant mothers’ in this study we refer to those mothers who were born outside the Netherlands. They are not from the countries mentioned in Dutch legislation specifically dealing with minority groups. The information on the factors from the exploratory regression model (birth weight, infant temperament and negative social interactions) is presented in appendix 2.

Conclusion and discussion on maternal mental health

No significant impact was found of the MIM programme on maternal mental health. All mothers improved their mental health scores. This improvement was significant for both control groups, but not for the experimental group. This may be influenced by the fact that the experimental group included only 31 women, whilst group I consisted of 138 and group II of 46 women. Social support indicators influenced maternal mental health (lack of social support, receiving negative interactions and being dissatisfied with the household support activities of the partner). Special attention could be given to supporting fathers, as 9% (19 fathers) of the T3 cohort was responsible for the significant negative relationship with the dissatisfaction categories of household support on mental health. Nine of these fathers were from experimental families. Perceiving a lack of social support is significant negatively present in all maternal mental health models.

Both the exploratory regression model of T3 and the longitudinal regression model give indications that special attention could be given to first-time mothers when their infant had a foreign born grandmother, as it had a negative relationship with the first-time mother’s mental health.
7.6.2 Maternal and infant general health

No significant differences were found with the Kruskall Wallis test at T3, ($\chi^2 3.144$, d.f.2, $p = 0.208$) between the three groups on maternal general health. Control group I had the highest mean rank (114.62), the experimental group 102.48 and the mean rank of control group II was 99.53. General health of experimental mothers did improve over time. The mean increased slightly from 3.94 to 4.13 (0.19). The increase in control I was from 4.14 to 4.24 (0.10). Control group II decreased from 4.18 to 4.06 (-0.12). The Wilcoxon test showed that none of the differences within each group over time was significant.

Changes in maternal general health (T3 - baseline)

The longitudinal effects in this section are over a period of six months, which is the time between T2 and T3. The final longitudinal model found 9 significant factors. Four factors increased the maternal perception of her general health. Life events during pregnancy, and easy temperament of the child, and two social support indicators: being satisfied with the partner's caring support and being somewhat dissatisfied with the partner's household support. Five factors decreased the maternal health perception, i.e. the baseline score for maternal general health and a planned short-stay delivery. The other factors were social support indicators: negative social interactions, dissatisfaction with partner's household support activities and the dummy 'missing values for partner's satisfaction with household support'.

In the exploratory regression model three additional factors were found: having experienced a complicated delivery had a negative relationship with maternal general health at 7% significance level. Higher birth weight ($p = 0.068$) and a baby girl ($p = 0.085$) were having a positive influence on maternal general health. The total explained variance of the ordinal regression is $\chi^2 223.651$, d.f.15,163, $p = 0.000$, Pseudo $R^2$ McFadden 0.458; see table 7.9b.

Hospital admission for personal and social reasons and the dummy for missing cases of the partners' household support were only significant in the exploratory, but not in the final regression model. Having experienced a hospital admission for personal and social reasons could have been influenced by the removal of the factors 'complicated delivery' and 'infant birth weigh' from the model.

Conclusion and discussion on maternal general health

MIM had no impact on maternal general health in the 'longitudinal' model of maternal general health. The experimental group did, however, increase their general health score more than those in the two control groups. Some change did occur, but this was not significant. The general health scores of the mothers in control group II actually decreased over time. The difference between the T3 and the T3 - baseline final regression models was that the social support indicators were not present in the final T3 model. This may indicate that in the six months period between T2 and T3 social support is becoming increasingly important as a factor that is influencing maternal general health.

Infant general health

No significant difference was found with the Kruskall Wallis test at T3 between the three groups ($\chi^2 5.494$, d.f.2, $p = 0.064$). The experimental group had the lowest mean rank (96.62), and control group I the highest (117.53). The mean rank of control group II was 98.77. The Wilcoxon test showed that differences within all three groups over time were significant. The experimental group difference was -0.83, Z - 2.76, $p = 0.006$. The difference in control group I was -0.49, Z - 4.99, $p = 0.001$ and in control group II - 0.61, Z - 6.54, $p = 0.000$. 

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Changes in infant general health (T3 - baseline)
Infant general health decreased in all groups over time. The experimental group decreased most from 4.53 to 3.70, whilst the decrease in control I was from 4.55 to 4.06. Control group II decreased from 4.43 to 3.82. The administration of the third questionnaire coincided with the administration of the Mums, Measles and Rubella (BMR) inoculation. This may have influenced the score on infant health, as indicated by some of the mothers on the questionnaires. Two mothers scored their infant health at T3 as bad, nine as not so bad and 48 as sometimes good, sometimes bad. All other mothers reported that their child had no effects from the inoculations. Four children were diagnosed with a chronic ailment, two of which were serious.

Explaining the differences in infant general health (T3-baseline)
Nine significant factors were found. Two positive and significant factors were having an easy child and having experienced a life event during pregnancy. Seven factors show a negative relation with changes infant health. The first is the T1 infant health score, which was entered for controlling purposes. A negative relation was found for the lifestyle indicator having used

| Method: Ordinal regression | - 2 = N = 9 (includes -3 and -4 also) | 1 = N = 38 |
| - 1 = N = 38 | 2 = N = 14 (combines +2 and +3) | Total N = 178 |

<table>
<thead>
<tr>
<th>Thresholds</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>Wald</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differences maternal general health = - 2</td>
<td>-20.83</td>
<td>2.91</td>
<td>51.32</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences maternal general health = - 1</td>
<td>-17.76</td>
<td>2.80</td>
<td>40.11</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences maternal general health = 0</td>
<td>-13.02</td>
<td>2.57</td>
<td>25.66</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences maternal general health = 1</td>
<td>-8.87</td>
<td>2.40</td>
<td>13.63</td>
<td>0.000</td>
</tr>
<tr>
<td>Maternal health T2 (range 1 - 5)</td>
<td>-4.84</td>
<td>0.50</td>
<td>93.69</td>
<td>0.000</td>
</tr>
<tr>
<td>Life events during pregnancy (= 1)</td>
<td>1.09</td>
<td>0.37</td>
<td>8.97</td>
<td>0.003</td>
</tr>
<tr>
<td>Complicated delivery (= 1)</td>
<td>-0.63</td>
<td>0.35</td>
<td>3.23</td>
<td>0.072</td>
</tr>
<tr>
<td>Planned short-stay delivery (= 1)</td>
<td>-1.45</td>
<td>0.56</td>
<td>6.87</td>
<td>0.009</td>
</tr>
<tr>
<td>Hospital admittance for personal and social reasons (= 1)</td>
<td>-2.30</td>
<td>1.14</td>
<td>4.08</td>
<td>0.043</td>
</tr>
<tr>
<td>Infant’s birth weight (range 1.1 - 4.9 kg)</td>
<td>0.64</td>
<td>0.35</td>
<td>3.34</td>
<td>0.068</td>
</tr>
<tr>
<td>Single parent (= 1)</td>
<td>2.81</td>
<td>1.46</td>
<td>3.71</td>
<td>0.054</td>
</tr>
<tr>
<td>Infant gender (girl = 1)</td>
<td>0.62</td>
<td>0.36</td>
<td>2.97</td>
<td>0.085</td>
</tr>
<tr>
<td>Infant’s temperament (range 88 - 213)</td>
<td>0.03</td>
<td>0.01</td>
<td>9.35</td>
<td>0.002</td>
</tr>
<tr>
<td>Negative social interactions (range 7 - 21)</td>
<td>-0.20</td>
<td>0.68</td>
<td>8.57</td>
<td>0.003</td>
</tr>
<tr>
<td>Somewhat and reasonably dissatisfied with partner’s household support (= 1)</td>
<td>2.08</td>
<td>0.72</td>
<td>8.30</td>
<td>0.004</td>
</tr>
<tr>
<td>Dissatisfied with partner’s household support (= 1)</td>
<td>1.09</td>
<td>0.48</td>
<td>5.17</td>
<td>0.023</td>
</tr>
<tr>
<td>DM household support (= 1)</td>
<td>-3.09</td>
<td>1.031</td>
<td>5.54</td>
<td>0.019</td>
</tr>
<tr>
<td>Satisfied with partner’s caring support (= 1)</td>
<td>1.55</td>
<td>0.45</td>
<td>12.02</td>
<td>0.001</td>
</tr>
<tr>
<td>Foreign born grandmother (= 1)</td>
<td>1.46</td>
<td>0.73</td>
<td>3.99</td>
<td>0.046</td>
</tr>
</tbody>
</table>

Model fitting $\chi^2$ 223.651, d.f.15,163 p = 0.000 Pseudo R$^2$ McFadden 0.458

Table 7.9b Moderating and mediating factors influencing differences between maternal general health (Exploratory model)
alcohol during pregnancy. Two moderating factors had a negative relation; being an older first-time mother and having experienced a hospital delivery for personal and social reasons. Finally, two social support indicators were negative and significant: the expected social support interactions and the actual received social support interactions, which the mothers felt lacking.

<table>
<thead>
<tr>
<th>Method: ordinal regression</th>
<th>Recoded differences infant health:</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0 N = 56</td>
</tr>
<tr>
<td></td>
<td>-3 N = 4</td>
</tr>
<tr>
<td></td>
<td>-2 N = 25</td>
</tr>
<tr>
<td></td>
<td>-2 N = 25</td>
</tr>
<tr>
<td></td>
<td>-1 N = 69</td>
</tr>
<tr>
<td></td>
<td>Total N = 179</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Thresholds</th>
<th>Estimate</th>
<th>Std. Error</th>
<th>Wald</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Differences infant health = -3</td>
<td>-23.77</td>
<td>2.94</td>
<td>65.25</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences infant health = -2</td>
<td>-21.18</td>
<td>2.84</td>
<td>55.58</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences infant health = -1</td>
<td>-18.56</td>
<td>2.75</td>
<td>45.41</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences infant health = 0</td>
<td>-15.85</td>
<td>2.65</td>
<td>35.82</td>
<td>0.000</td>
</tr>
<tr>
<td>Differences infant health = 1</td>
<td>-11.55</td>
<td>2.48</td>
<td>21.72</td>
<td>0.000</td>
</tr>
<tr>
<td>Infant health T2</td>
<td>-2.71</td>
<td>0.33</td>
<td>67.61</td>
<td>0.000</td>
</tr>
<tr>
<td>Alcohol (range 1 - 5)</td>
<td>-0.61</td>
<td>0.27</td>
<td>5.12</td>
<td>0.024</td>
</tr>
<tr>
<td>Life event (= 1)</td>
<td>0.62</td>
<td>0.31</td>
<td>3.91</td>
<td>0.048</td>
</tr>
<tr>
<td>Age (range 17 - 40yrs.)</td>
<td>-0.08</td>
<td>0.04</td>
<td>5.11</td>
<td>0.024</td>
</tr>
<tr>
<td>Infants’ temperament (range 88 - 213)</td>
<td>0.02</td>
<td>0.01</td>
<td>5.17</td>
<td>0.023</td>
</tr>
<tr>
<td>Social support interactions (range 43 - 115)</td>
<td>-0.03</td>
<td>0.01</td>
<td>6.68</td>
<td>0.010</td>
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<tr>
<td>Lack of social support (range 36 - 87)</td>
<td>-0.10</td>
<td>0.02</td>
<td>33.56</td>
<td>0.000</td>
</tr>
<tr>
<td>DM lack of support (= 1)</td>
<td>-4.13</td>
<td>1.17</td>
<td>12.42</td>
<td>0.000</td>
</tr>
<tr>
<td>Planned hospital delivery for medical reasons (= 1)</td>
<td>0.51</td>
<td>0.31</td>
<td>2.77</td>
<td>0.096</td>
</tr>
<tr>
<td>Planned hospital delivery for personal and social reasons (= 1)</td>
<td>-1.77</td>
<td>0.89</td>
<td>3.93</td>
<td>0.047</td>
</tr>
</tbody>
</table>

$\chi^2$ 128.24, d.f. 10, 169, p = 0.000, Pseudo R² McFadden 0.253

Table 7.10 Moderating and mediating factors influencing differences between infant general health T3 and infant general health T2 (exploratory model)

The exploratory regression model ($\chi^2$ 128.24, d.f. 10, 169, p = 0.000, McFadden 0.253; see table 7.10) consisted of one additional factor; a planned hospital delivery for medical reasons (p = 0.096).

Conclusion and discussion on infant general health
MIM had no impact on infant general health. The T3 - baseline infant health result showed which factors have caused a deterioration of infant general health during the last six months. This decrease could be influenced by the fact that the children received their last inoculations a few days prior to the administration of the T3 questionnaire. It is striking that life events, lifestyle factors (mostly negative events were mentioned; serious illness or death of a parent or friend, accidents, adverse reactions to the pregnancy from others) and circumstances around the birth that occurred more than a year earlier (alcohol, hospital deliveries) are still influencing the infant health, although the factor ‘complicated delivery’ was absent from the
model. The impact of a ‘maternal life event’ on infant general health as reported at T1 is present even after 15 months. This is probably a catching-up effect, which was also found in the maternal general health model. The positive relationship between infant general health and a medically indicated confinement could be connected to a problem during pregnancy. Preventative measures before, during or shortly after the confinement produced a healthy infant.

The place of delivery was also significant in the maternal general health model at T3 - baseline. Special attention could be given to children born in hospital for social and personal reasons, as those mothers perceived a decrease general health of their infants. Planned and unplanned hospital deliveries are indicated when there is a health risk present for either mother or infant before, or due to social circumstances. Being born in hospital for medical reasons had a positive relation with infant general health. There were 212 mothers with a medical indication for having their child born in hospital. Planned hospital delivery for medical reasons had a 10% significance level.

7.6.3 Maternal competence with parenting

No significant difference was found with the Kruskall Wallis test at T3 between the three groups ($\chi^2 = 2.588$, d.f.2, $p = 0.274$) on maternal competence in parenting. The mean rank of the experimental group was the lowest (97.18) and those of control group II and I was 115.83 and 105.84 respectively. The Wilcoxon rank test found one significant difference. The experimental group mean for competence with parenting increased over time (31.20 to 32.94), whilst those of the two control groups I and II decreased from 34.94 to 33.87 and from 34.19 to 33.18 respectively. Mothers in control group I decreased significantly (-1.07, $Z = 3.10$, $p = 0.002$). The increase of scores of the experimental mothers and the decrease of the scores of the mothers in control group II were not significant, $+1.74$, $Z = 1.48$, $p = 0.138$ and $-1.01$, $Z = 1.01$, $p = 0.311$ respectively. This means however, that the participation in MIM apparently prevent a decline in maternal competence as was found in control group I. The women in control groups I and II decreased their competence with parenting. This is an important finding as the level of competence in the experimental group was 3 points less in the baseline (T2) model compared with the control groups. It gives rise to the question how strong this effect is. Using Cohen’s formula (1988) for effect size it found a value of 0.61, which can be considered as strong (0.56 - 1.20). As can be seen from this range the value found is at the lower end of the scale, which indicate that further improvement is possible.

Changes in competence with parenting (T3 - baseline)

Participating in the MIM programme had no impact in the ‘longitudinal’ model. The range of the differences in maternal competence with parenting between T3 and baseline at T2 was from -15 to 13, with 104 (50.7%) mothers decreasing their score over time; the other mothers scored the same or increased their competence. The baseline score of competence and the infant temperament factors remained significant in the final regression model, (Adjusted $R^2 = 0.523$, $F; (d.f.4, 200) = 56.98$, $p = 0.000$; see table 7.11b).
### Unstandardized Coefficients

<table>
<thead>
<tr>
<th></th>
<th>B</th>
<th>Std. Error</th>
<th>T</th>
<th>Sig.</th>
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<tr>
<td>Constant</td>
<td>6.49</td>
<td>1.13</td>
<td>3.39</td>
<td>0.001</td>
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<tr>
<td>T1 Competence (range 19 - 42)</td>
<td>-0.71</td>
<td>0.05</td>
<td>-14.59</td>
<td>0.000</td>
</tr>
<tr>
<td>Gender infant (1 = girl)</td>
<td>-0.72</td>
<td>0.42</td>
<td>-1.71</td>
<td>0.088</td>
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<tr>
<td>Infant's temperament (range 88 - 213)</td>
<td>0.11</td>
<td>0.01</td>
<td>9.17</td>
<td>0.000</td>
</tr>
<tr>
<td>DM infant's temperament (= 1)</td>
<td>18.94</td>
<td>2.89</td>
<td>6.55</td>
<td>0.000</td>
</tr>
</tbody>
</table>

Adjusted $R^2 = 0.523$, $F$ (d.f.4, 200) = 56.98, $p = 0.000$

**Table 7.11b Differences between maternal competence score T3 and maternal competence score T2 (exploratory model)**

Explaining the difference maternal competence with parenting
Infants' gender was having a negative influence at 8.8%; having a girl made mother's feel less competent with parenting. This was in accord with the T2 model where having a boy influenced maternal competence positively.

**Conclusion and discussion on maternal competence**
MIM did have an impact on maternal competence. The lower score for maternal competence for MIM mothers measured at baseline had disappeared by T3 relative to the two control groups.

The most important influence on maternal competence with parenting seems to be infant temperament. This is an understandable finding. Easy children will act differently than children with a more difficult temperament, as noted in chapter 4. Mothers find life easier if they feel the child is willing and pleasing in daily contacts when guiding and ensuring safe behaviours. Having an infant boy had a positive and a foreign born grandmother a negative relation with maternal competence at all stages of the investigation.

#### 7.6.4 Satisfaction with the well baby clinic

A significant difference was found with the Kruskall Wallis test between the three groups on satisfaction with the well baby clinic at T3 ($\chi^2 = 7.89$, d.f.2, $p = 0.019$). The experimental group had the lowest mean rank (100.88), whilst control groups I and II had respectively a mean rank of 116.23 and 140.77. Satisfaction with the well baby clinic increased over time in all groups. The experimental group increased from 44.88 to 45.55, control group I increased from 46.13 to 48.68 and control group II increased from 47.91 to 49.53. The difference in control group I was 2.55, $Z = 5.15$, $p = 0.000$ and in control group II the difference was 1.62, $Z = 3.66$, $p = 0.000$. The experimental group difference was 0.67, which was not significant ($Z = 1.08$, $p = 0.281$).

Explaining the differences between T3 and baseline satisfaction well baby clinic
A 'longitudinal' regression model was found using the results obtained by subtracting T2 scores of those of the T3 scores. The final regression model was developed after two factors (reasonably or somewhat satisfied with partner's caring support activities and participating in MIM) were removed from the exploratory regression model, $(Adj. R^2 = 0.200$, $F$ (d.f.9, 180) = 6.24, $p = 0.000$; see table 7.12b).
Method: linear regression  
Range: 10 (worst) - 28 (best)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>N = 189</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Constant</td>
<td>14.97</td>
<td>3.57</td>
</tr>
<tr>
<td>Satisfaction well baby clinic T1 (range 23 - 54)</td>
<td>-0.19</td>
<td>0.07</td>
</tr>
<tr>
<td>Experimental group (= 1)</td>
<td>-1.66</td>
<td>0.99</td>
</tr>
<tr>
<td>Life event during pregnancy (= 1)</td>
<td>1.41</td>
<td>0.69</td>
</tr>
<tr>
<td>Foreign grandmother (= 1)</td>
<td>-2.73</td>
<td>1.22</td>
</tr>
<tr>
<td>Planned short-stay delivery in hospital (= 1)</td>
<td>2.71</td>
<td>0.99</td>
</tr>
<tr>
<td>Reasonably and somewhat satisfied with partner's caring support (= 1)</td>
<td>-1.18</td>
<td>0.69</td>
</tr>
<tr>
<td>Reasonably dissatisfied with partner's caring support activities (= 1)</td>
<td>-6.16</td>
<td>1.61</td>
</tr>
<tr>
<td>DM caring (= 1)</td>
<td>-6.35</td>
<td>2.18</td>
</tr>
</tbody>
</table>

Adj. R² 0.200, F: (d.f, 9, 180) = 6.24, P = 0.000

Table 7.12b Moderating and mediating factors influencing the difference between the scores of satisfaction with the well baby clinic (exploratory model)

The final regression model contained seven factors. Two factors had a significant positive relation with being satisfied with the well baby clinic: having experienced a life event during pregnancy and a planned short-stay delivery. These findings are plausible as noted earlier in this chapter. Five factors were having a significant negative relation with being satisfied with the well baby clinic. These are the baseline score for well baby clinic satisfaction, the moderating factor of having a foreign born grandmother, and three social support indicators: receiving negative social interactions, being reasonably dissatisfied with partner’s caring support activities and its dummy for missing cases of social support with partners’ caring activities.

When comparing the different models from T2, T3 and the T3 - T2 some differences were noted. In the T2 exploratory regression model third level education and subscribing to a private insurance scheme were included, but these were absent in the subsequent models of T3 and the differences between T3 - T2 model. Social support indicators are present in all exploratory regression models, whilst the child’s temperament so prominently present in models of other outcome factors is totally absent. This means that the satisfaction with the well baby clinic is not influenced by the child’s temperament, but highly influenced by the lack of instrumental social support as provided by the partner.

Conclusion and discussion satisfaction well baby clinic
Satisfaction with the well baby clinic increased for all groups. Participating in the MIM programme was not significant in the final longitudinal model of satisfaction with the well baby clinic, but was significant at baseline and T3. This means that there was no further deterioration in satisfaction with the well baby clinic of MIM mothers relative to the other groups in the last six months. This could be related to the selection of mothers into the MIM programme, and the dropping out of mothers during the study.
7.6.5 Social support

A significant difference was found for 'lacking social support' with the Kruskall Wallis at T3. The experimental group had the highest (worse, 137.21) and control group I the lowest (least 101.40) ranking for T3 measurement of 'lack of social support, $\chi^2$ 8.072, d.f.2, $p = 0.018$. This result is similar to that of the T1 measurement. Mothers in the experimental group did not significantly change in the Wilcoxon rank test (-1.666, $p = 0.096$). This result could be influenced by the fact that only 29 experimental mothers were included in T3 for measuring lack of support. The test found significant differences for mothers in control group I (-4.974, $p = 0.000$) and control group II (-4.261, $p = 0.000$).

Explaining differences between T3 - baseline lack of support

MIM has no impact on the maternal perception regarding a lack of support in the 'longitudinal' model. The final regression model contains nine significant factors containing four positive and five negative significant factors. They were found for two moderating and one lifestyle indicator: third level education, having a foreign grandmother and smoking cigarettes during pregnancy. Perceiving negative interactions was significantly increasing maternal perception of lacking social support. Lack of social support was significantly negatively related with five factors. The T1 score of lack of social support entered for controlling purposes was having, as expected, a negative relation. Other negative factors, actually decreasing maternal perception of lacking social support were: planned short-stay delivery in hospital and the social support indicators 'negative social interactions', and its dummy for missing cases.

In the exploratory regression model ($R^2$ 0.340, adj. $R^2$ 0.310, F; (9,200) = 11.42; see table 7.13b) two additional factors were found: having third level education ($p = 0.095$) and having drank alcohol during pregnancy ($p = 0.073$).

### Table 7.13b Moderating and mediating factors influencing the difference between T3 and T1 of maternal perception of lacking social support at (exploratory model)

<table>
<thead>
<tr>
<th></th>
<th>Unstandardized Coefficients</th>
<th>N = 209</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>B</td>
<td>Std. Error</td>
</tr>
<tr>
<td>Constant</td>
<td>41.28</td>
<td>5.22</td>
</tr>
<tr>
<td>Lack of support T1 (34 - 87)</td>
<td>-0.63</td>
<td>0.07</td>
</tr>
<tr>
<td>Third level education (= 1)</td>
<td>2.32</td>
<td>1.38</td>
</tr>
<tr>
<td>Cigarettes during pregnancy (range 1 - 25)</td>
<td>0.43</td>
<td>0.16</td>
</tr>
<tr>
<td>Alcohol during pregnancy (range 1 - 5 per week)</td>
<td>-2.17</td>
<td>1.21</td>
</tr>
<tr>
<td>Foreign grandmother (= 1)</td>
<td>5.54</td>
<td>2.25</td>
</tr>
<tr>
<td>Planned short-stay confinement (= 1)</td>
<td>-3.84</td>
<td>1.92</td>
</tr>
<tr>
<td>Social support interactions (range 44 - 127)</td>
<td>-0.25</td>
<td>0.05</td>
</tr>
<tr>
<td>DM social interactions (= 1)</td>
<td>-25.12</td>
<td>7.53</td>
</tr>
<tr>
<td>Negative social interactions (range 7 - 21)</td>
<td>0.76</td>
<td>0.30</td>
</tr>
</tbody>
</table>

$R^2$ 0.340, adj. $R^2$ 0.310, F; (9,200) = 11.42

Two factors were similar as found in the T1 regression model: 'foreign grandmother' but with increased scores (from 3.43 to 5.54) and social support interactions, (similar scores).
Conclusion and discussion on lack of support
Given that a lack of support has an important relationship with maternal mental health in both the T1, T3 and the longitudinal regression models, it means that the factors identified by this regression indirectly contribute to the mother's state of mind.

7.6.6 Overall conclusions and discussion on outcomes
The outcome measurements provide a learning loop that feeds information back into programmes on how well they are doing. It offers findings they may use to adapt, improve and become more effective. This section gives answers to the questions that relate to maternal and infant outcome indicators posed in chapter 5. The questions asked were, whether there were significant differences between the experimental MIM group and the two control groups on perceived maternal mental and general health, infant general health, competence with parenting and being satisfied with the well baby clinic.

Maternal mental health
All groups increased their mental health score over time. Participating in MIM had an impact on maternal mental health, but this was not significant, probably due to the small group size. Infant temperament and its dummy for missing cases were present in baseline, T3 and longitudinal models. This means that over time infants having an easier temperament improved maternal mental health in the same way for mothers in the experimental and two control groups. Factors that negatively influenced maternal mental health were having a low birth weight infant, and the social support indicators 'lacking partner's support with household activities' and 'receiving negative interactions'. This is understandable, as having a low birth baby can be very stressing as it impinges directly on the infant survival and future health. These topics warrant consideration by co-ordinators and visiting mothers in future programme implementation. Having cultural ties other than those of the majority group (Dutch mothers) also warrant attention, as it is negatively related to the mothers' perception of her mental health. This could mean for instance, that the cultural appropriateness of the current delivery of the MIM programme to mothers of minority groups could be revisited.

Maternal and infant general health
MIM had no impact on maternal general health. There were no significant differences found between the experimental and two control groups on maternal general health and infant general health. The mean scores of maternal general health did however, increase over time for mothers participating in the MIM programme, whilst those in the control group II decreased. Maternal general health is positively influenced by many moderating factors: increased birth weight, single parenthood, having a girl, and having experienced a life event. Being a member of a minority group (migrant grandmother) is also having a positive relation with maternal general health. No explanation for this can be offered, as it is in contrast with the maternal mental health perception. Social support indicators 'social support interactions' and partner's support with caring and household activities' were positively related to maternal general health. Receiving negative interaction was having a negative relationship, as had having a planned short-term hospital confinement or a hospital confinement for personal and social reasons.
MIM had no impact on infant general health. All infant general health scores decreased over time, which was probably related to the fact that the children received their last inoculation shortly before the administration of the last questionnaire. Negative relations were found for being an older mother, having consumed alcohol during pregnancy, and choosing to have a
planned hospital delivery for personal and social reasons. The negative relation between infant health and alcohol use during pregnancy was not surprising, as alcohol consumption during pregnancy effects the infant development during gestation. Positive relations were found for having an easy infant and having experienced a life event. This last finding was somewhat surprising, as most life events mentioned were negative (deaths or accidents). There were, however, mothers who mentioned positive events such as changing jobs or moving house. The mediating factor social support was again very important as two indicators, 'lacking support' and 'receiving negative comments' were found to have a negative relation with the maternal perception of infant general health.

**Competence with parenting**
MIM did have an impact on maternal competence with parenting. Compared with mothers from the control groups, at baseline the experimental mothers felt on average 3 points less competent with parenting. This difference reduced relative to the mothers in the two control groups at T3. This is an important finding. It means that over time, the perception on competence with parenting of the experimental mothers improved and became similar to that of the mothers in the control groups. Results at T2 and T3 also showed that the mother's perceived competence increased when the child had an easy temperament or the child was a boy.

**Satisfaction with the well baby clinic**
MIM had initially a negative impact on maternal satisfaction with the well baby clinic. At baseline and in the T3 models, participating in the MIM programme had a significant negative relation with being satisfied with the well baby clinic. Compared with mothers from the control groups the dissatisfaction of the experimental mothers increase from 1 at baseline to 3 points at T3. The deterioration in satisfaction with the well baby clinic ceased in the last six months. This meant that over time, the MIM mothers' satisfaction with the well baby clinic became similar to that of the mothers in the two control groups. This is an important finding, as the nursing agencies would be unlikely to provide a parent support programme which could undermine the mothers' confidence on the activities provided by the well baby clinic teams.

Nurses do take time whenever possible when mothers indicate a problem or when short discussion on specific topics is signalled. It is inherent in the way nurses practise at the well baby clinic. According to the comments on the questionnaires, mothers indicated that they expect medical monitoring and vaccinations at the clinic, answers to individual child health related queries and up-to-date child developmental information plus, where appropriate, referral to, for instance, an Internet site.

In the next section the results of the investigation on maternal and infant behavioural indicators are presented.

### 7.7 Maternal / infant behaviour indicators

Maternal and infant behavioural indicators were breastfeeding practices, infant food consumption, cup use and maternal fat consumption. All maternal / infant indicators were measured once at 10 months, except breastfeeding which was measured at 6 weeks, 10 months and 15 months. This means that no effect from the MIM programme could be measured for infant food consumption, maternal fat consumption or infant cup use. It was
envisaged to measure the effect of MIM on the duration of breastfeeding, but this proved to be impossible due to the nature of the data presented. Inoculations against infectious childhood diseases were noted, whilst possible reactions from the inoculations are described.

**Inoculations**
Information on inoculations was collected at ten and 15 months. One mother refused to have her child inoculated on principle (religious grounds): 216 of 218 infants were fully immunised against Diphtheria (D), Pertussis (K), Tetanus (T), Poliomyelitis (P) and Haemophilus influenza type b (Hib). One infant was inoculated with only Diphtheria, Tetanus and Poliomyelitis. Three inoculations of the fourth DKTP were postponed due to illness of the infant between DKTP II and III (six months time interval between III and IV). For eight children the DKTP IV was not yet administered; five of them will do so shortly according to a short note of their mothers. Fifteen mothers (7%) did not have their child immunised against Mums, Measles and Rubella (refusal of MMR), which is usually administered at about 14 months. The uptake of the BMR is high, but it could be discussed whether MIM could play a role in enhancing the BMR uptake.

**Breastfeeding and length of breastfeeding practice**
The recommendation of the Health Inspectorate (IGZ, 1999) is to breastfeed an infant for at least three months, but preferably longer. Thirty-four percent of mothers' breast-fed their infant for at least three months, which is higher than the 17% reported by the IGZ nationally. Twenty-three percent of the mothers indicated that their breastfeeding practice lasted for six months.

No difference was found between groups for the duration (in days) of breastfeeding ($\chi^2$ 1.100, d.f.2, $p = 0.577$) with the Kruskall Wallis test. The mothers in control group II had the highest mean rank (135.67), followed by those in the experimental group (131.14). The mean rank of control group I was 124.37. Breastfeeding is more common for women with a third level education. Mothers with a primary level education start breastfeeding their child less often than mothers with a secondary or third level education ($p = 0.000$). The differences between mothers from the 30+ ($N = 84$) and those in the 25-29 year old group ($N = 51$) was nearly significant ($p = 0.054$), with the older women breastfeeding more than those in the younger age group.

**Cup use**
The use of a cup was measured when the infant was approximately ten months. The percentage of mothers who switched from bottle to cup-use was 70%. Mothers from infants in the ‘12+ months’ age category tend to have made the switch to the drinking cup more often than mothers of younger infants. This was not significant. The percentage of cup users does accord with the Koelen et al (2000) findings, although in that study drinking-cup use was measured when infants were aged between 9-18 months. This age difference may explain the lower percentage of mothers using a drinking cup found in this study.

**Energy and macro nutrients infant**
Food records of 165 infants were analysed for this study: 165 were analysed by Baars (2000) and Van Buren (2000). No significant differences between the experimental and two control groups were found. The reported energy and macro-nutrient intake of the infants in this study was significantly higher on almost all the nutrients, compared to the intake as published and recommended in previous studies on this subject.
Maternal fat consumption

The fatty foods test was originally developed to make people aware of their fat consumption, by giving them insight in their own food habits and to indicate what is meant by good fat consumption. The test was not meant to measure the amount of fat consumed. The MIM evaluation used the test as a rough indication for the way respondents act upon the guidelines from the 'Watch your fat' campaign. No significant differences were found between the experimental and two control groups (p = 0.435).

An ordinal regression was performed to investigate the five nutrition behaviour items together. Data for each of the five 'behaviours' were assessed to establish whether the mother adhered to the guideline, as advocated by the well baby clinic. A new variable was created using the following procedure. If the mother adhered to the guideline (fatty food, infant's energy intake, started to breastfeed or breastfed longer than three months, or introduced the cup around 9 months) the ranking score given was '1'. If the mother did not adhere to that guideline the ranking score was '0'. These scores were summed; 1 denoting only one guideline was adhered to (poor food behaviour). Ranking '5' meant that all guidelines were adhered to (very good food behaviour). Using this procedure the scores approximately 51% (N = 114) of the 221 mothers who scored on the health behaviour indicators were obtained and used.

Entering moderating and mediating variables a final regression model for health behaviours was obtained (Model fitting \( \chi^2 \) 19.307, d.f. 3, 17 p = 0.000; Pseudo R² McFadden 0.058, see table 7.14)

<table>
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<th>Sum food = 5 N = 25</th>
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<td>Sum food = 3 N = 30</td>
</tr>
<tr>
<td></td>
<td>Sum food = 2 N = 18</td>
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</tr>
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<td>Tresholds</td>
<td>Estimate</td>
<td>Std. Error</td>
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<td>Sum foods = 1</td>
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</tr>
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<td>Sum foods = 2</td>
<td>0.16</td>
<td>0.56</td>
</tr>
<tr>
<td>Sum foods = 3</td>
<td>1.60</td>
<td>0.59</td>
</tr>
<tr>
<td>Sum foods = 4</td>
<td>3.22</td>
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</tr>
<tr>
<td>Secondary education (= 1)</td>
<td>1.47</td>
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</tr>
<tr>
<td>Third level education (= 1)</td>
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<td>0.68</td>
</tr>
<tr>
<td>Migrant (= 1)</td>
<td>1.25</td>
<td>0.63</td>
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</table>

Model fitting \( \chi^2 \) 19.307, d.f. 3, 17 p = 0.000, Pseudo R² McFadden 0.058

Table 7.14 Moderating and mediating factors influencing maternal / infant health behaviours N = 114

The McFadden's R-square was rather low. Four 'food behaviour groups' were clearly distinguished. Three factors were found to be positive and significant: second and third level education and those with a migrant background. In the sample migrant mothers adhered to the nutritional health promotion messages more so than Dutch-born mothers. It should be born in mind that these migrant mothers at T3 were from west-European countries and the US, and not from countries covered in specific legislation dealing with minority groups in Dutch society. This result also indicates that the staff of the well baby clinic could give more attention to those with a primary education.
7.7.1 Conclusion maternal / infant behaviour indicators
The high uptake of inoculations was as expected, as this accords with national statistics. No significant difference could be measured between mothers of the experimental and two control groups for the time they were breastfeeding their infants. The study found however, that approximately 38% of the mothers who commenced breastfeeding did so for more than three months and 23% breastfed for six months. These percentages are higher than those found nationally. No significant difference could be found between the three intervention groups for switching from baby bottle to a drinking cup. Significant differences were found between the infants aged 12 months and older and the infants aged 9, 10 or 11 months in absolute protein intake, percentage of energy from protein, and protein intake per kilogram body weight. The higher protein intake in the older infants is unusual, as the adequate protein intake per kilogram body weight is lower for infants older than 12 months compared to infants aged 6 to 12 months. Significant differences were also found between the oldest infants and 9 months old infants in percentage of energy from fat on age of the infant. According to the Dutch Nutrition Council (1989) these percentages should not differ.

7.8 MIM's theoretical model
In chapter 4 the possible determinants for inclusion into a theoretical model for MIM were described. In order to build a theoretical model a framework for analysis was developed, which was presented in chapter 5. This section uses the information from the T3 - baseline analysis to generate an exploratory regression model, which is presented in three steps. The boundaries of the theoretical model came from the Bronfenbrenner theory of human ecology, which emphasised the importance of a social context, as this influences human development. Mothers caring for their infants are influenced by their child's characteristics, and visa versa. The partner, family and the wider social network of the mother in turn influences this relationship. MIM emphasises the development of the mother, because mothers' behaviour influences the development of the infant directly. As the results indicate, MIM has an impact on maternal competence with parenting and it thereby influences the interaction between the mother-infant dyad.

The community-nursing agencies started the MIM programme initially for all first-time mothers, as they would be the ones to experience an important role change i.e. becoming a mother. In reality, community nurses and MIM co-ordinators selected those mothers with specific needs, or those living in particular circumstances (see target groups in chapter 2). The visiting mothers were introduced into the mothers' wider social network as role models / informal social support workers. Looking at the results in this chapter, it could be argued that the mothers' capacity to improve their health is related to the level of social support received by them from their partners and the wider social network.

The theoretical model was generated using moderating and mediating factors to determine the outcomes. Table 7.15 gives an overview of the moderating and mediating factors, which are related to maternal mental health, maternal and infant general health, maternal perception of her competence with parenting and her feelings on satisfaction with the well baby clinic.
<table>
<thead>
<tr>
<th>Factor / Outcome</th>
<th>Maternal mental health</th>
<th>Maternal general health</th>
<th>Infant general health</th>
<th>Competence with parenting</th>
<th>Satisfaction well-baby clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infant characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant gender</td>
<td>+ 0.085</td>
<td></td>
<td></td>
<td>- 0.088</td>
<td></td>
</tr>
<tr>
<td>Birth weight</td>
<td>- 0.084</td>
<td>+ 0.068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Complicated delivery</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Place of delivery: hospital because:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Planned short stay</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Medical reason</td>
<td>- 0.009</td>
<td>+ 0.096</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Social and personal reason</td>
<td>- 0.043</td>
<td>- 0.047</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal characteristics</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3rd level education level</td>
<td></td>
<td>- 0.024</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single parent</td>
<td>+ 0.054</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Life event</td>
<td>+ 0.003</td>
<td>+ 0.048</td>
<td></td>
<td></td>
<td>+ 0.043</td>
</tr>
<tr>
<td>Alcohol</td>
<td></td>
<td>- 0.024</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cigarettes</td>
<td></td>
<td>- 0.051</td>
<td></td>
<td></td>
<td>- 0.027</td>
</tr>
<tr>
<td>Migrant</td>
<td>- 0.101</td>
<td>+ 0.046</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mediating variables</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Maternal perception Infant temperament</td>
<td>+ 0.093</td>
<td>+ 0.023</td>
<td>+ 0.000</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social support partner</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Caring support</td>
<td>+ 0.001</td>
<td></td>
<td></td>
<td>- 0.000</td>
<td></td>
</tr>
<tr>
<td>• Household support</td>
<td>- 0.032</td>
<td>+ 0.004</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social support network:</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Social interactions</td>
<td>+ 0.081</td>
<td>- 0.010</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Lack of support</td>
<td>- 0.001</td>
<td>- 0.000</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>• Negative interactions</td>
<td>- 0.081</td>
<td>- 0.003</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.15 Overview of B sign and significant level of moderating and mediating factors' influence on outcomes in MIM evaluation based on exploratory regression models T3 - baseline.

**Moderating factors**
Indicators used in this investigation were grouped in infant's and maternal characteristics.

**Infant characteristics**
All infants' characteristics (except incubator occupancy), in the analytical model (see chapter 5) were utilised in the MIM exploratory theoretical models. They comprised infant's gender, birth weight, and birth circumstances (complicated delivery and place of confinement). Although *infant's temperament* is really an infant's characteristics it was thought to be an important factor on its own. In the study it was the maternal perception of the child's temperament that was measured, which could act like an interaction variable between mother and child. The child's temperament appeared to be an important factor, as it is related to an increase in maternal perception of mental health, infant general health and feeling compe-
tent with parenting. The gender of the infant was relevant in two maternal focused models (maternal general health and competence with parenting). MIM could give special attention to mothers with a child born in hospital for social and personal reasons, as this had a negative relation with infants’ general health.

Maternal characteristics
Maternal characteristics were grouped into four categories: (1) age, last completed educational level, single or two-parent family, with private health insurance as an indicator for social economic status. (2) Cultural background, and (3) the life style indicators smoking and alcohol use during pregnancy. (4) The last category was life events experienced during pregnancy. Three moderating factors related maternal characteristics (maternal age, single parenthood, and educational level) were found in respectively the infant general health model, maternal general health model and lack of social support model. The reason for admission to hospital for the confinement is positively related to infants’ general health as expected, but was found to be negatively related to the partner’s household activities. Those with a home delivery or an unplanned short-stay hospital confinement seems to be very satisfied with the partner’s support. Cultural diversity (having a foreign-born, mostly West-European or US, background) relates negatively with maternal mental health, the two support activities by the partner, and feeling satisfied with the well baby clinic. Two other factors were ‘lifestyle indicators’ smoking cigarettes and drinking alcohol during pregnancy’, which were found in the lack of social support and the infant general health model respectively.

Mediating factors
The mediating factors in the original analytical framework consisted of self-efficacy, empowerment and social support factors.

Self-efficacy
Factors in the framework of analysis presented in chapter 5 were compared with the factors found in the exploratory regression models presented in this chapter. The factor ‘capacity building / empowerment’ (locus of control) is absent from the model as it was excluded from the T3 and subsequent models, due to the validity of the instrument at T3 being insufficient. Self-efficacy theory could have provided a useful framework for promoting mothers’ health related behaviour during the first 15 months of their child’s’ life. As stated by Olds et al (1997) Bandura distinguished efficacy expectations from outcome expectations. Outcome expectations are the mothers’ estimate that a given behaviour will lead to a given outcome. Efficacy expectations are the mothers’ beliefs that they can successfully carry out the behaviours required produce the outcome. This study was unable to examine the mothers’ self-efficacy capacity directly. However, there are indications that the mothers mastered their skills over time as the results indicated with regard to maternal competence in parenting. The experimental mothers increased their scores over time in such a way that their scores were similar to those of the mothers in the control groups.

Social support
The mediating factors were social support indicators such as partner’s household and caring support activities, social support interactions from a wider network, receiving negative interactions and the discrepancies felt by mothers of social support interactions which were translated into feeling a lack of, or receiving too much social support. The social support indicators were used to develop models to investigate whether these indicators were related to
maternal mental health, competence with parenting and satisfaction with the well baby clinic. These models were based on the differences between T3 minus baseline using two-way least squares regression analysis. Social support indicators are related to the outcome variables, but the expected evidence from the outcome factors to the support indicators was not found.

All factors associated with the wider social network relate positively to having a foreign grandmother. Often Dutch parents will try to solve parenting problem themselves and focused on their family unit. One could speculate that mothers with a foreign background help each other and that the social network members are supporting the first-mother in looking after her baby. Acculturation factors may influence mothers’ perception on lacking social support, mental and general health, being satisfied with the well baby clinic, or competent in parenting, because she comes from another country than the Netherlands.

Two social support discrepancies are related to the mother's social network: too much and lacking social support. The partner's support activities were interacting with each other, and with the mother’s feelings that she was lacking social support. Secondary and third level education was related to the wider social network factors lacking support and negative interactions, but not related to any of the other outcome factors.

Social interactions and sufficient partner's support with caring and household activities are predictors for an increase of the mother's perception of her general health. Three social support indicators were contributing to a decreased mental health score. They are (1) lacking social support, (2) receiving negative comments or (3) insufficient help with household activities from the partner. Perceiving a lack of social support is significant negatively related in all maternal mental health models. Giving that a lack of support has a strong relation with maternal mental health in both the T3 and the longitudinal models, this means that the factors identified by this regression indirectly contribute to the mother's state of mind. These topics warrant consideration by co-ordinators and visiting mothers in the future (see also 7.5.7).

Outcome factors
The information in this section is based on the factors found in the exploratory regression models. The outcome factors were maternal general and mental health and infant general health as the health indicators and competence with parenting and satisfaction with the well baby clinic as indicators for maternal opinions or beliefs. Common factors associated with the three health indicators were infant's temperament and feeling a lack of social support. Infant birth weight is positively related to maternal mental health, feeling competent with parenting and receiving negative comments. Being a younger mother is related negatively to infant general health. Being a single parent related positively to maternal general health. Three outcome factors scores are increased by life events; maternal and infant general health and being satisfied with the well baby clinic. A planned short stay hospital admission was positively related to maternal satisfaction with the well baby clinic and with perceiving as having enough social support. A short stay hospital admission decreased maternal perception of her general health. Lacking partner's household support activities decreased maternal perception of her mental health and maternal satisfaction with the well baby clinic, but it was increasing maternal perception of her general health. Receiving too few social support interactions influenced maternal perception of infant’s general health.
7.8.1 General conclusion
A first attempt was made to develop a theoretical model for the MIM programme using maternal and infant characteristics together with social support factors. The initial analytical framework (see chapter 5) is confirmed with two exceptions. Some differences between the factors in the theoretical models in this chapter were found, compared to the factors mentioned in the analysis framework of chapter 5. Locus of control and the empowerment of the experimental mothers were not included in the final theoretical models of chapter 7. The expected feedback from the outcome factors back to the mother via the social support indicators did not materialise. They provide ingredients for further research.

The importance of the higher increase of maternal general health and maternal competence scores from T1 to T3, compared with the decrease of mothers scores in control group II, could mean that without the MIM programme their health and competence with parenting would have deteriorated further. Additional research is called for when a larger group of experimental mothers is available.

We have also learned that social support factors and the child's easy temperament are important factors when caring for and rearing a child. The factor is present in the maternal and infant health and maternal competence models. Easy children may act differently than children with a more difficult temperament (see chapter 4). The contribution of the partner (with caring and household tasks) is especially important when a first baby arrives. The factor 'lack of social support' is also present on numerous occasions. Unexpected was the factor life events during pregnancy and complicated delivery which remained important in the development of maternal general health, even after 15 months.

Although this study did not systematically assess the use of other services, some questionnaires indicated the attention of nurses, co-ordinators or others in referring them to other activities in the community. Bronfenbrenner theory also focuses on the MIM co-ordinators and visiting mothers attention on the identification of mother's needs and then systematically help them make use of existing additional services in the neighbourhoods. This is done in an attempt to reduce situational stressors that first-time mothers may encounter. A more detailed discussion is presented in the last chapter.
Chapter 8

Conclusions and recommendations

8.1 Introduction

This study evaluated the Dutch Mothers Inform Mothers (MIM) programme. In that programme a visiting mother visits a first-time mother in her home on a monthly basis and discusses the caring and rearing of her infant. This visiting mother volunteers her services and performs her activities in her own neighbourhood. She uses a peer educational approach in her dealings with the first-time mother to reflect on the information received from different sources (well baby clinic team members, family members, via the media). The visits take place on average once a month, and the visiting mother stimulates the first-time mother in finding her own solutions. The visiting mother uses her own experiences, cartoons and a 'topic for discussion' checklist as tools to help her to discuss issues systematically. The cartoons show pen-pictures and situations for discussion in the areas of psychosocial development, cognitive development, language, physical development, play and safety. A discussion about the contents of a cartoon may act as a start for exploring the mother's attitude, knowledge or behaviour in relation to the advice she has received from different sources.

The positioning of the MIM programme within the National Public Child Health (NPCH) programme was described in chapter 1, whilst an overview of the implementation process of the MIM programme is presented in chapter 2. The main lesson learned in that chapter is the need for improvement in implementing the programme at each location. A review of international and Dutch health promotion and parenting programmes was provided in chapter 3. The theoretical basis for the MIM programme is described in chapter 4, whereas the results of testing the theoretical model can be found in chapter 7. Chapters 5 and 6 deal with the execution of the evaluation study and provided the nuts and bolts of the evaluation. Results on the cohort study and the survey on breastfeeding, infant food consumption and maternal fat consumption are presented in chapter 7. In this final chapter (8) theoretical, practical and managerial implications are discussed and recommendations from theory, practice and policy perspectives are offered.

Purpose and aims of the study
The reasons for an evaluation are bound together by a common thread: the need to know what works. The study is done for different reasons, which are clustered in three blocks: concerned with the effects of the programme, the strengthening of the MIM programme and identifying future challenges. Firstly, the evaluation would:

- Provide information and, where appropriate, recommendations concerning the positioning of the programme in the public infant health services.
- Integrate appropriate theoretical perspectives into the MIM programme.
- Determine outcomes in relation maternal mental health, maternal and infant general health, maternal competence with parenting and satisfaction with the well baby clinic.
Secondly, an evaluation of MIM may strengthen the NPCH services in the area of family support, especially so for inexperienced parents. Thirdly, an evaluation should be supportive and responsive to the programme. It identifies challenges and opportunities. Reliable information to stakeholders is provided from which to address these challenges and it identifies areas for programme improvements. In line with recent recommendations, the evaluation had a mixture of process and outcome information. This study provides:

- Information on enhancing day-to-day practice in the MIM programme.
- Set health promotion within the revised context of health reform.
- Facilitates the development of international expertise in health promotion whilst also providing a framework for training new practitioners.

It is argued in this chapter that changes need to be made in organising the MIM programme to enhance the programme before implementing it in new locations.

This chapter looks to the MIM programme from different perspectives. In 8.2, theoretical implications are discussed and conclusions of a more theoretical nature are presented. Topics for discussion are the theoretical model for the MIM programme, difficulties encountered in the study and research as a tool for policy development. Conclusion and recommendations for further research ends this section. Implications for practice are discussed in 8.3. The main research findings from the cohort study are presented in the same sequence as in previous chapters. Secondly, the results of the cross section survey on food consumption and breastfeeding are presented. The section ends with conclusions and recommendations for practice. The last section 8.4, implications for policy, discusses the organisation and implementation of the MIM programme from a management perspective. The sections details areas for improvement of the implementation process if the MIM programme is started at new locations, or they could be seen as proposals for change at the current programme locations.

8.2 Theoretical implications

Proponents of the theory-based evaluation argue that by combining outcome data with an understanding of the process that led to those outcomes, we can learn a great deal about the programme’s impact and its most influential factors. Theory-based evaluation had its origin on the principle that every social programme is founded on theory - some thought process about how and why it will work. This theory can be either explicit or implicit. The key to understanding what really matters about the programme is through identifying this theory. The theory base has been presented in chapter 4. This process is also known as developing a programme logic model - a picture as it were, - describing how the programme works (see chapters 2 and 7).

Olds & Korfmacher posed three essential questions for a programme evaluation: (1) ‘For whom did the intervention work’, (2) ‘Under what conditions did the intervention take place’ and (3) ‘How did the intervention bring about change?’ The analysis is related to intermediate and health promotion outcomes such as an effective health service, which incorporates elements such as healthy public policy, organisational practice, education and social action. This study provides an exploratory theoretical model for the MIM programme. The results give indications of workable aspects of the programme and they identify strengths and weaknesses.
MEM is positioned in a network of activities, which support parents in their parenting activities. It is only a small element in a larger public support programme, which links in with relevant health and social policies, social benefits, and the provision of children's allowances, child care services, toy libraries and support when encountering parental difficulties. MEM did bring about change for first-time parents and this study provided the programme with a further theoretical base.

The boundaries of the MIM model are formed by Bronfenbrenner's human ecology theory, emphasising a social context, which influences human development. Social support and the child's temperament were the two social variables investigated as mediating factors in this study. Our model found that different social support indicators, such as partners support with caring and household activities and the support of a wider social network, are very central for first-time mothers finding their way into parenthood. The social support factors were present in the models for maternal mental health, and maternal and infant general health. The model also found the child's temperament to be a strong factor, as an easy temperament influenced the maternal perception of increased mental health, infant general health and the feeling of increased competence with parenting. Maternal perception on her competence with parenting is largely influenced by the child's temperament and to a lesser degree by the gender of the infant. This is an important finding, as it identifies the need for visiting mothers to give special attention to first-time mothers who are finding their baby 'difficult'. Social support indicators and the child's temperament seem to have a relation with some of the outcome factors, but the expected evidence of feedback from the outcome factors to support variables was not found.

8.2.1 Difficulties encountered in the study
There were some serious weaknesses in the study. The number of participants in the experimental group was small. Fifty percent of first-time mothers who delivered their baby between August 1st 1998 and March 31st 1999 and who were participating in the MIM programme in four locations were included in the study. Epidemiological data on local female populations at childbearing age was insufficiently available during the first part of the investigation (see chapters 5 and 6). The baseline models themselves were not as informative as the longitudinal models. Using the longitudinal models had as a consequence that only 31 experimental mothers were included, compared with 139 mothers in control group I and 48 mothers in control group II. Eleven experimental mothers dropped out of the study, (see chapter 7).

The investigation was carried out in a field setting. This challenged the investigator's creativity when recruiting mothers into the study, as the nursing agencies were the holders of the personal details of the first-time mothers. Therefore the questionnaires had to be distributed by the nursing agencies. The use of postal questionnaires was increased due to the personal approach of a letter from the nursing agencies, which was hand delivered by public health nurses from the well baby clinic during their visit. However, limited time was available to explain the purpose of the study fully so those mothers had to rely on the written explanations from unknown researchers. Follow-up of first-time mothers in the recruitment phase was impossible due to privacy constraints. Routinely gathered information by clinic nurses and social paediatricians on respondents could not be used due to privacy constraints and the fact that they were unaware as to who were participating in the study.
The extra recruitment drive under experimental mothers (see chapter 5) gave rise to difficulties. Mothers returned the questionnaires at different times. The subsequent age range of the infants was from 9 - 13 months in the infant nutrition survey instead of the envisaged ten months, which biased the results.

The initiators of the MIM programme had identified specific target groups who could benefit from the programme. Two target groups were specially identified: teenage and migrant mothers. The study did include women from many different cultures and continents. The impact of their culture on parenting and other outcome factors was measured only indirectly through questions on the mothers’ and the maternal grandmothers’ country of birth. The teenage mothers participating in the MIM programme were not included in the study.

This study did not systematically investigate whether the programme is sensitive to individuals of other cultures or ethnicity. Some indicators were presented in chapter 2. Migrant visiting mothers were recruited into the programme and into the study, but no conclusions can be drawn on whether the MIM programme reached a sufficient proportion of migrant mothers as no criteria were set to make the comparison. Nor were attempts made to investigate the migrant women because of the heterogeneity of nationalities within the group (five continents were represented).

Difficulties encountered became challenges, which led to valuable insights. The evaluation proved to be a learning experience for MIM co-ordinators and the evaluator as the chosen methodological approaches allowed first hand insight into the processes involved in programme implementation and the social and environmental context in which it took place.

8.2.2 Research as tool for policy development

Research and evaluation rarely affects policy directly. Instead, a complex combination of facts, assumptions, ideology, political strategies, personal interest and beliefs of policy makers influence policy. This evaluation study does not pretend to cover all aspects with a proactive design, such as elements of interest and beliefs of policy makers. It did however, try to be innovative and to be able to identify possible venues for action and trends that may be of interest to policy makers. Hopefully, it contributes to policy changes at multiple levels as it is only through connecting policies and practice in meaningful ways that we can hope to make a sustainable and real change in the lives of children and families in our communities.

Connecting to process evaluations

The MIM programme is based on the principle that health promoting information is only given to the first-time mother on request. It is also assumed that potential problems and questions are discussed and dealt with by the visiting mothers at an appropriate moment. Personal conversations with and observation of some visiting mothers during home visits by the researcher give indications for early interventions at appropriate moments. The visiting mother would, for instance, mention to the first-time mother that she had programme information available suited to the development stage of the baby. She would then ask, could she share this information with the first-time mother. Then, the cartoon dealing with the information was produced.

Programme tools such as the cartoons and the discussion paper address issues to enhance and stimulate protective factors in the social environment. Choices of topics were made available to stimulate discussion on values and norms as practised within the family and the pro-
gramme also links-in to other services. Determinants such as speech and language development, as part of a normal child’s development, are included in the cartoons, as well as aspects on safety in and around the home and infant nutrition.

8.2.3 Conclusions and recommendations for theory and research
This study made a comprehensive attempt to provide the MIM programme with a sound scientific base. From its initial stages the programme incorporated assumptions on temperament, social support and empowerment, but these constructs were not formally connected or developed into a scientific model, which was grounded in theory. No results could be presented on capacity building / empowerment as the chosen instrument failed its validity test. Empowerment is an important topic and a building block in the theoretical model. Some indicators for empowerment of visiting mothers have been found, but none were measurable regarding the first-time mothers. Further evaluative research is strongly recommended based on a quasi experimental research design, in which the researcher is free to using a mechanism for the subsequent allocation of mothers to the experimental and control groups. This could be done by randomisation or matching technique.

An investigation is recommended on discourse between nurses and first-time mothers and between visiting and first-time mothers The differences in discourse during home and clinic visits between well baby clinic nurses and first-time mothers, MIM co-ordinators and first-time mothers and between visiting mothers and first-time mothers has not been investigated, especially regarding the contents of the programme’s cartoons. It could provide data on possible differences in language and speech used during the discourse, which in turn could provide insights on how information is conceived, understood and acted upon by the first-time mothers. The investigation could also supply information on topics of interest of the first-time mothers and the way these topics are dealt with by visiting mothers, co-ordinators and nurses.

Further research is also recommended on effects if the MIM programme were to be linked to activities geared to enhancing and stimulating protective factors in the social environment. No formal attempt was made to investigate the referral of first-time mothers to follow-up activities such as local early learning programmes, play schools, or toy library. Local policy is stimulating close collaboration in the area of parenting support between agencies. As this study shows the co-ordinators do indeed participate in a formal network. There is, however, no formal collaboration between the programme and the other agencies, nor is there information available to monitor the referrals to and from these other pre-school activities. It would also be useful to gain an insight into the referral practice of visiting mothers and co-ordinators so as to enable the linking of the MIM programme to other local pre-school children services. In that way local ownership of the programme may be enhanced.

8.3 Implications for practice
In this paragraph the main results on outcomes of maternal and infant health and behaviour are presented and implications for practice discussed. The question posed in chapter 1 ‘Does the MIM programme work effectively and efficiently’ has to be answered ‘could be improved upon’ based after reading the research findings of chapter 7 and the description of the programme in chapter 2.
8.3.1 Programme delivery
The programme was delivered by visiting mothers who started their visits, on average, in the second month after a woman had her first baby. This is relatively late. There is a simple explanation for this delay. Results from process evaluations by the nursing agencies point to the fact that pregnant women are not interested in the programme prior the delivery of the infant (see chapter 2). Shortly after the birth life is hectic for the new mother and very often a maternity nurse, partner or friend may still be around. After about two weeks the infant health nurses make a first appointment, after an introduction of the programme from the well baby clinic. The co-ordinator assesses the needs of the mother and if indicated visiting and experimental mothers are matched. Shortly thereafter the two mothers make an appointment for a first introductory visit. They get acquainted before an appointment is made for the first programme visit.

Recruitment first-time and visiting mothers
The number of mothers in the experimental group was low. The causes were varied. All co-ordinators were working part-time, with each co-ordinator supporting 25 visiting mothers per 0.5Fte. This number was used as a quota for the recruitment of first-time mothers, which resulted in a recruitment stop for first-time mothers at several occasions. It is important for a programme to be dependable, with room for all those in the catchment area needing the services. During the development of the study cohort the recruitment of first-time mothers was also hampered by the unavailability of co-ordinators through sickness and job vacancies. No first-time mothers were recruited in that period and the support visits to the visiting mothers were reduced.

The visiting mothers were recruited, prepared, supported, coached and supervised by co-ordinators employed by the nursing agencies. The preparation time for potential visiting mothers could take up to three months depending on the frequency and the time for reflection of each individual mother. Group and individual sessions once or twice a month are employed to prepare volunteers for their visits. Although no investigation took place in the manner in which those preparation sessions were actually carried out, the co-ordinators’ handbook states that the preparation is competence driven. Keeping the contacts with the mothers confidential is the main topic, followed by discussions on views of parenting. In this way the co-ordinator gains an insight into the potential visiting mother’s parenting skills, personality, educational level, civic status, and age. Having had multiple births or a child with a disability or illness were indicators also used in recruiting for matching first-time mothers who had similar experiences.

Organisation of home visits by visiting mothers
The programme caters for 18 short monthly visits, but the visiting mothers do give opportunities for more contacts (by telephone or additional house visits) if the need arises. This happens only occasionally in the first months.

The well baby clinic nurses did refer first-time mothers to the MIM programme, but occasionally when those mothers contacted the co-ordinator they found the door closed by reason of a caseload restriction. On 30th of June 2000 114 visiting mothers were visiting 225 first-time mothers in the four locations (see chapter 2), which gives as average 2 first-time mothers per visiting mother. This ratio should be improved when taking into account that the co-ordinator has to train each visiting mother and supervise her individually on a monthly basis. As a
result there is limited access to the programme, as only when sufficient visiting mothers places are available first-time mothers are recruited into the programme. This happened several times, but why?

Co-ordinators are very much aware that potential visiting mothers are volunteers. They therefore do not ask for a commitment of the potential volunteer to visit for a set number of hours per month in order to participate in the programme. Instead, each potential visiting mother is asked to visit four first-time mothers monthly. This objective is not met as most mothers have other commitments also. It also give rise to another challenge. With only two mothers a month, the visiting mothers are unable to gain experience in visiting, as is advocated by Powell (see chapter 2). This experience is necessary. When visiting mothers have developed their own expertise as visiting mothers they are much more able to offer innovative practices and choices best suited to the individual mother visited. This would enhance the quality of visiting in the programme.

*Migrant visiting mothers*

Co-ordinators have visited migrant women groups and have shown themselves to be sensitive to individuals of other cultures and ethnicity. They and the visiting mothers were instrumental in the development of cartoons, which are not only focused on Dutch Caucasians, but give also examples for people of other ethnic origin (black) or cultures (Islam). Attending groups discussions and two national visiting mothers days gave indications that migrant visiting mothers have been recruited into the programme not only because of language and cultural adaptations within programme delivery, but also to give their opinions of appropriateness of topics for discussion.

8.3.2 Empowerment of visiting mothers

Indicators were found for use on how empowerment impacted on visiting mothers.

1. Experienced visiting mothers have moved on to take up activities promoting the programme to the public.
2. Mothers are now engaged in recruiting visiting and experimental mothers.
3. They collaborate with the co-ordinators in preparatory sessions with potential visiting mothers, preparing them in a practical sense to working in the programme.

A next step would be to involve these visiting mothers in formal supporting activities towards other visiting mothers. This activity would be a logical step for experienced mothers to take when empowerment as a tool for capacity building is taken seriously. An important issue then has to be addressed. When mothers are active in supporting other mothers to visit, they could then also become involved with the recruitment of first-time mothers into the programme. That would fit in with government policy, which stimulates the notion of 'communities that care' and it would fit with the notions of human capacity building / human capital. It could be helpful for sustaining the programme in the long-term. In consequence it would mean devolving authority from the nursing agencies towards a collaborating activity with existing and new community groups or agencies, including the mothers.

8.3.3 Maternal / infant health indicators

The empirical study found an impact of the MIM programme on *maternal competence*, see chapter 7. The indications that the competence of the experimental mothers was increased over time in such a way that they became comparable with the mothers in the two control groups
has to be interpreted cautiously, as these women were a very selected group. This is also the case with the interpretation of the results on satisfaction with the well baby clinic. The experimental mothers were, during the first ten months of the study, dissatisfied with the clinic, but during the last six months their dissatisfaction disappeared relative to the two control groups. The mean scores of maternal health did increase over time for mothers participating in the MIM programme, whilst those in control group II decreased. This is a positive indicator for the programme and should in time be revisited.

**Satisfaction with the well baby clinic**

This outcome warrants some extra attention, as this was the reason articulated by some of the first-time mothers for participating in the study. It is striking that events that occur around the time of the birth of the child had a relation with satisfaction with the well baby clinic at 15 months. This is shown by the positive influences on satisfaction with the well baby clinic of a planned short-stay hospital delivery and the life events experienced during pregnancy at T3 minus baseline models. Finding a negative influence of having a foreign grandmother in the same model was surprising, as this factor was excluded in all other satisfaction models.

The influence of the factor *negative social interaction* was first noted in the T3 model, as it did not appear in the baseline models. Perhaps, as time goes by, the mothers’ expectations became higher than heretofore, as a result of the participation in the MIM programme, or the mothers were becoming more competent as indirectly indicated by the competence models.

At 15 months about 10 % (N = 23) also indicated separately on the questionnaire their dissatisfaction with the well baby clinic. Topics used as examples were paternalism, lack of time to discuss topics on an individual level, involuntary change of appointments, and a need for changing clinic hours (opportunity for evening or weekend opening of clinic was suggested). Having completed third level education and less than satisfied with the partner’s caring support activities showed a significant negative relation with satisfaction with the well baby clinic. Highly educated women may have higher expectations of the clinic activities on offer, such as time to discuss their infants’ behaviour, their own queries answered, checking their own information gathered from other sources or feeling being put under a time constraint. It could give rise to being disappointed or dissatisfied with the clinic and this would be in accordance with the findings of Pardoen & Cuyvers (2001).

**8.3.4 Maternal / infant behaviours**

The attention on healthy eating habits by the well baby clinic teams focused on decreasing fat consumption and prolonging breastfeeding. The mothers in the study who breastfed their babies did so longer than those on average if compared with national statistics. This could be influenced by their participation in this study. The programme addressed serving meals according to appropriate dietary standards for infants and toddlers. This study showed no significant difference between experimental and controls group on dietary nutrients or fat consumption. There is, however, a trend that showed that mothers in the experimental group consumed less fat than those in both control groups. The infants in the experimental group consumed less protein than the infants in both control groups.

Breastfeeding and healthy eating habits are topics for discussion during the programme, but also topics mothers discuss between friends. Uncertainty about the appropriate amount or type of food is regularly present as mothers change from feeding bottle to drinking cup to giving the infant normal food to eat at the family dinner table.
8.3.5 Conclusion and recommendations for practice

The implementation of the programme could be enhanced. One of the objectives of the study was to provide recommendations towards implementing the programme in other locations in the Netherlands. To do this, the question on whether the programme's aim is well defined and its objectives documented is relevant, as it is (1) important for receiving any additional funding in the initial implementation phase and (2) necessary to be able to monitor the programme's progress over time.

Tracking short-term achievements takes some of the pressures off demonstrating long-term effects in the first few years or having little to say about the programme for several years. It allows the MIM co-operative (SMIM) and its members to modify the theory and thereby increase the potential for achieving long-term impacts. The overall aim of the MIM programme is similar to that of the public infant health services (see chapter 2). The broadly described aims of MIM such as helping mothers to cope, increasing self-confidence etc. need to be formulated into measurable entities. Aims are general statements of intent. They must be translated into objectives. Objectives need to adhere to the acronym SMART: Specific, Measurable, Achievable, Realistic and Time scale (which must be stated). Two types of objectives can be distinguished: policy and educational objectives. For instance, empowering women is an objective of the MIM programme, especially the empowerment of first-time mothers. Nurses and the management of the community-nursing agencies did not formulate an objective in MIM on empowerment in relation to first-time mother, nor for visiting mothers. Implicitly the study found signs that empowerment of the mother did take place as former first-time mothers did start as visiting mothers and visiting mothers in turn did become engaged in recruiting other mothers, active in public relation activities and perform training activities. It is recommended that further steps be taken to formulate SMART driven objectives in relation to empowering women.

In chapter 2 representatives of the nursing agencies formulated some aims during the study without being ratified by the SMIM-co-operative: They were to

1. Focus on all activities related to parenting, such as stimulating a healthy environment, enhancing attachment between parents and infants, stimulating cognitive, physical and social development for the infant. This study would recommend that SMART driven objectives be formulated so that these activities may be monitored at a later stage.

2. Improve the ratio visiting to first-time mothers. The MIM programme is not reaching 33% of a birth cohort of 12 months in the designated areas. An improved ratio of visiting mothers / first-time mothers of 1:4 may help to enhance the reach of the programme over time. When this ratio is reached it will contribute to enhancing visiting mothers' skills, as they gain more experience in their visiting mothers' role.

3. Reach teenagers, lone parents, migrant and families at risk and those needing more time than provided through the standard services by the public child health team. The study found that MIM did reach migrant mothers, although they were mainly from countries other than those mentioned in specific legislation for minority groups. Teenage mothers do participate in the MIM programme, but they chose not to participate in the study. Demographic data should be used to target areas with teenage mothers with a view of inviting them to join the programme. Indications are present that mothers needing more time and families at risk are participating in the programme. The study did include lone parents, but in contrast to other jurisdictions the average age of the lone parents was over 25 years of age.
4 Induce mothers who start breastfeeding their infants to continue to do so for more than three months. This study found that the respondents were breastfeeding longer than found nationally.

It is also recommended that a separate investigation on food consumption of infants at age ten months be carried out, which could be linked to cartoons from the MIM programme. In this way the effect of those cartoons can be established.

8.4 Implications for policy

Community-based health promotion programmes for parents with very young children are attractive to politicians, policy-makers, practitioners and parents alike. The explicit focus on outcomes for the child within the child's earliest and most important relationship seems to offer effective ways of enhancing their development and prevent or resolve a wide range of problems. In recent years there has been a focus on involving parents in work that emphasises the normality of parenting, drawing on the commonality of parenting experience, utilising each other's skills, and consequently being less reliant on the expertise of professional agencies. Current national and local government policy advocates healthy and caring neighbourhoods.

8.4.1 Programme characteristics
The conditions under which the intervention took place were good. The programme is imbedded within the public child health department of community-nursing agencies. The programme is project based, temporarily financed through the normal NCPH programme budget with additional subsidies of local authorities for the implementation phase. This may change with the change in positioning of the infant and toddler's public health services from community-nursing agencies to local authority co-ordination and financing (see chapter 1).

The value of evaluating the pre-requisites for programme implementation is that conditions in which co-ordinators and visiting mothers performed activities were made transparent. Community based and tailor made interventions increasingly try to adapt to the specifics of the sub-population and of the setting. This was the case at the localities in the MIM study. MIM was adapted to local circumstance. Visiting mothers of different ethic groups, educational levels and circumstances (having a twins, infant with congenital disease or ailment) were matched to first-time mothers with similar characteristics.

The MIM programme was community-based and developed with mothers from the different target groups that were identified. If thought necessary by the co-ordinators or managers the views of mothers were listened to and acted upon. At a practice level decision taking was shared with visiting mothers. The visiting mothers were able to organise, plan and carryout their home visits to suit her self, as long as agreed procedures were adhered too (using the discussion paper to record and give structure to the home visit). During the support sessions many of their practical suggestions were taken on board, but policy decisions are made at co-ordinators and management levels. In this way the visiting mothers programme could be said to have a functional type of participation within the MIM programme and indirectly with the infant public health services. As published elsewhere, the comments of mothers about the well baby clinics have been taken onboard, thus enhancing the well baby clinic service.52
8.4.2 Implications from a management perspective

MIM is occasionally competing with other activities within the same community-nursing agency. One of the agencies houses MIM and ‘Group-clinics for Mothers and infants’. According to the manager, each has its own clients. Instead of the individual consultation at the well baby clinic a group of ten mothers is invited to the clinic. There is a three-month infant age range within these groups. The activities are similar as those in the individual well-baby-clinic consultation, but here the group gets the chance to discuss information and compare their experiences in the group. The downside of this activity is competition with the recruitment for the MIM programme. Mothers do not take part in both activities; they decide on one or the other. Whenever well baby clinic nurses are recruiting new participants for a group no new MIM participants are recruited. This recruiting period can last up to three months. It is recommended that when MIM is side-by-side with an other parenting support programme for first-time mothers inclusion criteria for each programme are to be developed. These criteria could be used to advice the mother on the type of programme to enter as it would be suited to her own circumstances. This accords with the policy statement by management of nursing agencies that the provide tailor-made services are provided, which could enhance the effect of the programme.

8.4.3 Monitoring and quality assurance

Quality assurance measures find their legitimisation in the quality of care legislation as mentioned in chapter 1. Through the SMIM co-operative volunteer charters are in place in the four community-nursing agencies. It is not known whether this is also the case in the locations where the evaluation did not take place. Further developments should be documented and included in future evaluations. These charters deal with rights and obligations for both the nursing agencies as for the visiting mothers and cover expenses, insurance cover and educational opportunities.

‘Gold standards of acceptability’ presumes that a statement on how much change and when is formulated in the objectives developed during the planning process. An objective usually states who is expected to experience how much of what change by when. The object of interest centres on ‘the who’ and ‘the what’ if it is to be considered successful. In a health promotion programme these standards should state the conditions of the expected level of improvement for social, economic, health, environmental, behavioural, educational, organisational or policy objectives. This was not the case at the start of this study. Essential standards were developed during the course of the evaluation in a participatory process, as evaluation would have not been possible without them. Some arbitrary standards were set, for example, that 33 % of all first-time mothers of each annual cohort should be recruited into the programme.

The first-time mother also influences the ongoing quality assurance of the programme by sharing her experiences and suggestions about the use of cartoons, the discussion checklist, her experiences during the visits to the well-baby-clinic and the social support received from the visiting mothers. All well baby clinic teams have made adjustments as a consequence of feedback cycles from the first-time mothers via the co-ordinators to the clinic team members. These adjustments dealt with preventing the delivery of conflicting information on specific topics by well baby clinic nurses.
Documenting interim outcomes provide multiple opportunities. It demonstrates whether or not the programme is on track. A start has been made to monitor the progress of the MIM programme. A minimum data set on practical aspects of the work of co-ordinators and visiting mothers has been developed and published periodically in the MIM newsletter. It documents the education of the first-time mothers, the number of visiting and first-time mothers participating and the numbers of mothers leaving the programme prematurely. It also monitors the activities of the MIM co-ordinators and the extent of their involvement (Fte) in the programme. The first was distributed in early 2000 with the results of following years published at the end of each year.

Quality assurance measures are in place and are common for all four nursing agencies. All prospective co-ordinators are initiated in the programme’s practice by experienced co-ordinators. The co-ordinator prepares the visiting mother according to the standards set in the Handbook and visits them, in practice, on a regular monthly basis. Experiences shared during regular support meetings between the co-ordinator and visiting mothers are used to discuss problems or events with decisions made on how to act for future reference. These meetings also give opportunities to review practices among peers.

The training topics and preparation for working in the programme by visiting mothers and co-ordinators are standardised and are also laid down in the Handbook. The duties and privileges for volunteers in all four nursing agencies are regulated through the agencies’ Volunteer Charter. Topics warranting further discussions are taken to the most appropriate meeting such as the clinic team meeting, the national platform for co-ordinators, or discussed with management.

8.4.4 Financing the programme
A cost-benefit or cost-effectiveness study of the MIM programme was not carried out. Some indicators for a cost assessment are given to determine some value for money and to provide information to monitor future developments. Money is important as a tool for providing the initial outlay for MIM to be implemented. This study is not concerned with investigation of the economic impact of the programme. Information provided was that of the utility of financial and human resources that takes into account the costs of inputs such as salaries of professionals, expenses incurred by volunteers, and material cost, see also chapter 2.

The funding of the development phase and its action research component of the programme came largely from the Bernard van Leer Foundation in The Hague, the former Kruisvereniging Breda and the Netherlands Institute for Care and Welfare. The four nursing agencies had meetings with grant giving agencies or insurers when implementing their local programme, but no meetings were arranged with representatives of all stakeholders together. More recently, in the implementation phase, national support from the SMIM partners is shared with the Van Leer Foundation, Juliana Welzijn Fonds and Fonds Kinderpostzegels Nederland and local charitable trusts, coupled with funding from municipal subsidies. Breda and Uden receive monies through the normal statutory financial channels from their local health insurer. Financing the MIM project on a structural basis is now opportune. The SMIM co-operative states that the cost of the local project falls under the regular national public child health budget. Help is given in obtaining additional funding (usually municipal subsidy) for the initial stages of implementing the programme.
The start of MIM in local communities was hampered by the fact that investment in MIM was only a temporary measure. At the start of the study the annual national public infant health budget for 0 - 4 year olds was nationally approximately 290 million guilders, which was divided over 63 agencies using performance indicators to calculate each agency's budget. Budget parameter were negotiated once the programme was up and running with the regional health insurer, which administered the agency's regular budget, but this has changed. The financing of the child public health service has shifted to local government, but details on money allocation are still being worked out.

Enhancing the MIM programme further, as a community activity, may be viable if and when local authorities take the programme on board as part of a coherent package of community based early childhood activities. Funding could be shared with other local agencies working with parents of pre-school children, a desire which is stimulated by local authorities. It could be argued that MIM cannot function fully without these agencies, as they will supply them with the 'graduates' of their programme and as possible resources for recruitment of visiting mothers.

The SMIM co-operative solicits a subscription of 2500 guilders per year from its members to sustain a national programme support service in the future. Membership is only open for community nursing agency starting the programme and is covered by the prerequisite that they are affiliated to the National Association for Home Care. Membership entitles the member to receive support, materials and help to implement the programme in their organisation. It is unknown how the co-operative will act in future if they have to tender for carrying out the infant and toddler public health activities. There is evidence to suggest that a programme's success over the long term is associated with the ability of key stakeholders to change conditions within which programmes operate, thereby creating an environment where programmes can flourish.

The future of the programme may depend on how successfully the Co-operative develops a strategy for the transition from short-term funding sources to long-term funding based on the Public Health (Preventive Measures) Act. Attention is also increasingly focused on the conditions surrounding promising social programmes. Through the participation of the local early childhood education and care network the community-nursing agencies could examine with those other agencies the possibility to devolving authority of the MIM programme. These discussions could move towards a collaborating activity, which could include visiting mothers.

8.5 Conclusions and recommendations

Further research is recommended on MIM topics with the view to investigate their impact on (1) the mother's feelings on empowerment / self efficacy with parenting and (2) the policy statements made by the nursing agencies with regard to referral to other parental support services in the community and (3) providing tailor-made services, using the contents of the cartoons as proximal outcomes.

In chapter 2 a conclusion was drawn to increase the programme's efficiency as the recruiting of first-time mothers was based on a quorum of 25 visiting mothers per co-ordinator.
Experienced visiting mothers could be involved in supporting and supervising other visiting mothers (career change for those experienced mothers who wanted to leave) to combat the periodical reduction of recruitment of first-time mothers. Failure to do so introduces a degree of the undependability into the programme. It is recommended that co-ordinators recruit potential visiting mothers giving a commitment of minimum four hours a week in the MIM programme. It is further recommended that the visiting mothers visit at least one, but preferably two or more first-time mothers a week in the four hours available. In this way the expertise of visiting mothers can develop and it increases the number of mother served significantly.

Recruitment could be enhanced. There were no set guidelines on the extent of successfully reaching special target groups such as teenagers, lone parents, migrants and those with an ailment or disability in the general population of first-time mothers or their infants. Participation to the programme could be formulated into a SMART driven objective. It is recommended that the community-nursing agencies monitor the number of women as potential targets for entering the MIM programme (potential MIM participants). Potential MIM participants are offered the programme, whilst those declining the offer are noted. The number of potential MIM participants should guide appropriate planning for staff and volunteers, as process evaluations by the nursing agencies have shown that some mothers may enter the programme at a later stage.

To combat absence of co-ordinators it is recommended that well baby clinic nurses be trained in the philosophy of the programme. This alternative accords with competence level five of the professional nurse, whereby nurses are able to change their role towards facilitator and coach, as part of their routine duties at the clinic see chapter 1. They would then be available for those regular occasions when the co-ordinator is indisposed or when a vacancy occurs. It is strongly recommended that this activity be started as soon as possible.

There is unequal access to the programme. Unequal access can only be accepted if entrance to the programme is guided by an objective assessment on the needs of the mother / infant. Although the MIM programme is geared to take on all first-time mothers, in practice public health nurses of the well baby clinic refer the women, or the mothers fulfil the criteria for inclusion within one of the target groups (being at risk due to illness or disability of mother or child, teenage pregnancy, lone parent, migrant mother). If the community-nursing agency is serious in offering the programme to all mothers fulfilling the assessment criteria it is recommended that a short screening instrument be developed. Taking into account that national figures found 10 - 20 percent of parents to be in need of some type of support the nursing agencies could plan the participation of the MIM programme accordingly. Risk factors identified in this study (see chapter 6 and 7) could form the basis of this instrument, i.e. low birth weight, lacking social support, complicated delivery, planned short-term delivery in hospital, older mothers, adhering to non-Dutch culture or having a ‘difficult’ baby.

Working with SMART driven objectives is necessary for determining cost and benefits at a later stage. Criteria to measure whether an adequate number of mothers are reached in relation to the efforts cannot be answered, as no appropriate criteria were set. Common goals and registration will facilitate future benchmarking activities. The SMIM co-operative could stimulate the use of SMART criteria when formulating the objectives for programmes to be implemented in new locations. It is recommended that the agencies include realistic standards for reaching its target groups before the programme is implemented in a new location.
Competition between activities should be avoided. A short survey of prospective mothers should be carried out so that the mothers may decide on the programme in which they wish to participate. It is possible that the group of mothers / infants participating in the group activity has different background characteristics to those participating in MIM. If not, choices should be made on the basis of the effects of the activity on mothers or infants.

With regard to empowerment of visiting and first-time mothers it is recommended that discussions take place on human capacity building / human capital in order to stimulate full participation of the visiting and first-time mothers in decision-making processes within the MIM programme. This could lead to local ownership of the programme. These discussions should involve all relevant stakeholders, mothers, co-ordinators, management of the service, other local agencies for services directed towards pre-school children and representatives of the local (health) authority. Situating the programme outside a formal institution such as a community-nursing agency may help to develop the programme into a local civic activity, which could enhance local ownership.

Final conclusions
A contribution has been made to the theoretical basis of the MIM programme. The evaluation has shown programme effects, but these need to be improved: The programme is instrumental in enhancing the quality of health promotion activities of well baby clinic members; it plays a role in the quality assurance process and it has an effect on enhancing mothers' competence with parenting. Increasing maternal competence with parenting is strategically important, as the MIM programme is carried out as a method to support parents in their parenting tasks (see chapter 1). There are no indications that MIM had an influence on the mediating variables. This may be influenced by the fact that variables not included in the study, such as maternal attitudes, locus of control, or self-efficacy, play a role in the theoretical MIM model.

No significant effects were found on the health outcomes, but this may change if the power was increased (larger size of experimental group). Areas for improving the implementation process are given and to monitor the programmes' progress it is recommended that evaluation activities be incorporated within the implementation cycle. Empowerment / capacity building and positioning of the programme needs to be addressed at management level. The professional expertise of nurses and managers of community-nursing agencies give them particular responsibilities for supporting local communities and national health development programmes. Making healthy choices the easier choices through MIM is a strategy for helping people to accept responsibility for 'healthiness' of their own lives, recognising health as a resource to be protected and actively enhanced. In line with the nurses' scope of practice their role as facilitator and coach could be strengthened, giving more responsibilities to the visiting mothers and making MIM a truly community based and community-led programme.
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Samenvatting

Moeders informeren moeders: een evaluatie van een preventie programma

Moeders Informeren Moeders (MIM) is een gezondheidsdoorlichting- en opvoedingsondersteuningsprogramma (GVO-programma). Het is gericht op vrouwen die voor het eerst moeder zijn geworden. MIM wil moeders van eerste kinderen bereiken (zogenaamde programmamoeders) die in een achterstandssituatie verkeren. Het gaat daarbij niet alleen om vrouwen in sociaal-economisch zwakke omstandigheden, maar ook om vrouwen die geen of zwak sociaal netwerk hebben, mogelijk culturele barrieres ervaren, of een kind hebben gekregen met een minder goede start (couveuse), een ziekte of handicap. De algemene doelen van het MIM programma zijn:

- Het zelfvertrouwen, zelfredzaamheid en het zelfzorgvermogen van moeders van eerste kinderen vergroten.
- Moeders toerusten voor dagelijkse vragen over de verzorging en opvoeding door kennis, inzicht en vaardigheden te vermeerderen (vertrouwen op eigen intuïtie en signalering)
- Zorgen dat moeders minder afhankelijk worden van ‘deskundigen’ voor de opvoeding en verzorging van de baby.
- Sociale netwerken versterken.

Het programma wordt uitgevoerd door vrijwilligers (bezoekmoeder genaamd) die de programmamoeder thuis bezoeken. Deze vrijwilligers worden ondersteund door betaalde krachten (MIM-coördinatoren). De bezoekmoeders gaan maandelijks over een periode van 18 maanden op huisbezoek bij programmamoeders. Gemiddeld krijgen programmamoeders 10 bezoeken per jaar, waarin gediscussieerd wordt over de opvoeding en verzorging van de baby. In de huisbezoeken worden zeven thema’s behandeld: sociale en emotionele ontwikkeling van het kind, sociale steun voor de moeders, lichamelijke en verstandelijke ontwikkeling en groei van kinderen, taalontwikkeling, spel en speelgoed, veiligheid en voeding. Deze thema’s zijn gelijk aan die van het consultatiebureau voor zuigelingen (Cb).

Aanleiding evaluatie

Het MIM programma is een nieuwe methode binnen de openbaar gefinancierde zuigelingenzorg. Er waren drie redenen voor de evaluatie. Ten eerste reden was dat nieuwe activiteiten binnen de jeugdgezondheidszorg doelmatig en doeltreffend bijdragen aan het bevorderen van de gezondheid van zuigelingen of bijdragen aan de ondersteuning van ouders bij het verzorgen en opvoeden van hun kind. De tweede reden was dat MIM is ontwikkeld door moeders, ondersteund door pedagogen, GVO-ers en verpleegkundigen. Het gevolg was een praktisch opgezet programma met een onvolledige theoretische basis. Dat moest veranderen om het programma te kunnen versterken mede omdat alleen theoretisch gefundamenteerde programma’s in aanmerking kunnen komen voor opname in het openbare jeugdgezondheid pakket. De laatste reden was dat nieuwe programma’s overdraagbaar moeten zijn om ingevoerd te worden in nieuwe locaties.

Doel evaluatie

1 Verder ontwikkelen van een theoretische basis voor het MIM programma.
2 Meten van effecten van het MIM programma op de algemene en geestelijke gezondheid van de moeder, de algemene gezondheid van het kind, de moederlijke competentie bij het opvoeden en verzorgen en de tevredenheid van de moeder met het Cb, met inachtneming
van de invloed van 'sociale ondersteun' van partner en de deelnemers van het persoonlijk sociaal netwerk daarop.

3 Aanbevelingen geven voor het invoeren van het programma in (nieuwe) locaties.

Uitvoering evaluatie

Opzet evaluatie
De evaluatie is gesplitst in drie delen. In het eerste deel werd de literatuur over gelijksoortige programma's in Nederland en het buitenland geanalyseerd. Een vergelijking van Amerikaanse, Britse, Ierse en enkele Nederlandse programma's is uitgevoerd. Overeenstemming en verschillen werden gerapporteerd en beschreven (zie hoofdstuk 3). De buitenlandse programma's waren bedoeld voor moeders uit sociaal zwakke milieus, tiener moeders en alleenstaande ouders. Amerikaanse programma's richten zich op de preventie of kindermishandeling en de stimulering van scholing en betaalde arbeid. MIM werkt, net als het programma in Ierland, breder en is ontwikkeld als een gezondheidsbevorderend programma. De vergelijkingen konden niet veralgemeniseerd worden omdat de omstandigheden in de Verenigde Staten, het Verenigd Koninkrijk, en Ierland cultureel en financieel niet overeenkomen met die in Nederland. In de programma's uit de Verenigde Staten worden betaalde 'para-professionals' ingezet, terwijl in Ierland, het Verenigd Koninkrijk en Nederland dat vrijwilligers zijn.

Theoretische bouwstenen voor het MIM programma werden uit de internationale programma's gedistilleerd. Sociale steun, van partner en het sociale netwerk, zelfredzaamheid en 'locus of control' waren de theoretische bouwstenen uit deze programma's.

De inzet van moeders voor het doen van huisbezoeken was de grootste overeenkomst met de Britse en Ierse programma's. Dat was niet verwonderlijk omdat MIM vanuit Engeland en Ierland naar Nederland is gekomen. Nederlandse programma's die bekeken zijn waren 'Hordelopen', 'Home Start' en 'Instapje' aangezien deze programma's zich richten op dezelfde doelgroep: moeders van jonge kinderen. Als conclusie werd getrokken dat

- De internationale programma's op het oog veel met MIM gemeen hebben, maar dat de culturele verschillen zodanig zijn dat de materialen en werkwijze culturele aanpassing behoeven en niet automatisch geënt kunnen worden in Nederland.
- MIM behandeld de onderwerpen van het CB, terwijl de andere Nederlandse programma's het huishouden en de opvoeding ondersteunen (Home Start), de hechting tussen moeder en kind en de cognitieve ontwikkeling van de baby stimuleerde (Instapje), of inzicht verschaf over de normale ontwikkeling van het kind (Hordelopen).

De contouren zijn geschetst voor een theoretische onderbouwing van het MIM programma, (zie hoofdstuk 4). Een theoretisch model voor MIM werd ontwikkeld met theorieën uit de verpleegkunde, sociale psychologie, sociale steun theorie, en pedagogiek dat begrenst werd door Bronfenbrenner's ecologisch denken en interactieve processen. Deze theorieën zijn verbonden met de Primary Health Care gedachte en de internationale conventies inzake de gezondheidsbevordering en de rechten van het kind. Een theoretisch model voor het MIM programma werd ontwikkeld en is in dit onderzoek getest.
Het tweede deel is de beschrijving van de praktische invoering van het programma in de vier thuiszorginstellingen (zie hoofdstuk 2). Onderdeel daarvan was een kwalitatief onderzoek naar de beeldvorming van bezoekmoeders naar MIM-coördinatoren en van coördinatoren naar bezoekmoeders, de registratiegegevens van de MIM coördinatoren en het gebruik van resultaten uit een onderzoek naar rekrutering van bezoek en programmamoeders. Het programma staat op de grenslijn van gezondheid en welzijn. Het wordt uitgevoerd in samenspraak en samenwerking met de bezoekmoeders, maar de beleidsverantwoordelijkheid en financiering ligt bij het management van de thuiszorginstelling. Het programma bereikt programmamoeders van 18 verschillende landen uit vier continenten, maar of het programma voldoende migrantenvrouwen bereikt moet blijken uit nader onderzoek, aangezien het meetcriterium hiervoor ontbreekt. Iedere bezoekmoeder bezoekt gemiddeld twee programmamoeders. De ondersteuning van bezoekmoeders was gemiddeld 0.5 Fte MIM coördinator op 25 bezoekmoeders. De bijscholing van coördinatoren en de voorbereiding van potentiële bezoekmoeders gebeurt op locatie. Een handboek, procesevaluaties en reporten over rekrutering van moeders en beeldvorming over coördinatoren en bezoekmoeders zijn beschikbaar. De eerste trendgegevens over het programma zijn in 2000 gepubliceerd door het Samenwerkingsverband MIM.

Tenslotte, in het derde deel werden een cohort onderzoek en een voedingsenquête uitgevoerd. Zie hoofdstukken 5 en 6 voor respectievelijk een overzicht van de gebruikte instrumenten en het vaststellen van de betrouwbaarheid en validiteit daarvan. In het cohort onderzoek werd gekeken naar de:
  • Effecten van MIM op de algemene en geestelijke gezondheid van de moeder,
  • Algemene gezondheid van haar kind,
  • Gevoelde competentie van de moeder als ouder,
  • Tevredenheid met het consultatiebureau voor zuigelingen.

In de enquête werd gekeken naar de vetconsumptie van de programmamoeders, de voedselconsumptie van zuigelingen (inclusief borstvoeding) en het switchen van voedingsfles naar beker.

Uitval gedurende het onderzoek
Aan het einde van de studieperiode deden 124 van de 346 moeders niet meer mee met het onderzoek. Vijf significante factoren verklaarden deze uitval. Twee van de vijf factoren verhoogde de kans op uitval: ‘ongeplande’ (gestart als thuisbevalling, maar toch naar het ziekenhuis) en ‘geplande’ ziekenhuis bevalling (ziekenhuisbevalling op medische, sociale of persoonlijke indicatie'). De drie andere factoren (mee doen aan MIM, eenouder zijn, op jongere leeftijd moeder geworden) verkleinden de kans op uitval van het onderzoek. Ongeveer 28% van de vrouwen die uitvielen was correct voorspelt. Dit is een aanwijzing dat uitval beïnvloed wordt door toevalligheden, zoals bijvoorbeeld een verhuizing.

Beperkingen onderzoek
Een veldonderzoek heeft onverwachte momenten en ontwikkelingen. Het lage aantal moeders in de experimentele groep was niet verwacht. Alhoewel 50% van de programmamoeders meededen van degene die tussen augustus 1998 en maart 1999 een eerste hun baby hadden gekregen is dat niet genoeg. Extra moeders zijn benaderd om aan het onderzoek mee te doen. De programmamoeders hebben zichzelf of zijn door anderen (verpleegkundigen) naar het MIM programma verwezen (selectie bias). Dat kan de onderzoeksresultaten hebben vertekend.
De instrumenten om de zelfeffectiviteit van de moeder vast te stellen en de lage response van het informatie zoekinstrument bleken bij de tweede meting onbetrouwbaar te zijn. Deze factoren zijn in de nameting en in het theoretisch model vervallen.

**Resultaten**


De resultaten van de cohort studie, de enquête en is het geteste theoretisch model zijn gepresenteerd in hoofdstuk 7. Deelname aan MIM had geen effect op de geestelijke gezondheid van moeder. De experimentele groep moeders scoorde in de voormeting 3 punten minder op competentie bij opvoeden vergeleken met de moeders in de controle groepen. Bij de nameting was de gevoelde competentie bij opvoeden in de drie groepen gelijk. In de voor- en nameting van ‘tevredenheid met het Cb’ was het verschil negatief significant tussen de experimentele en controle groepen. Dit negatieve verschil vermindere in de laatste zes maanden en werd gelijk aan de tevredenheid van de moeders in de twee controle groepen. Er waren geen significante verschillen gevonden tussen de drie groepen inzake algemene gezondheid van moeder and kind. Wel was gemiddeld de algemene gezondheid van de experimentele groep baby’s bij de nameting hoger, terwijl gelijkertijd de algemene gezondheid van de baby’s in de controle groepen was verminderd.

Ongeveer 38% van de moeders die borstvoeding gaven deden dat voor meer dan drie maanden en 23% deed dat voor zes maanden. Deze percentages zijn hoger dan het landelijke gemiddelde. Baby’s in de experimentele groep consumeerde meer eiwit als energiebron dan vet vergeleken met baby’s uit de controle groep. Geen significante verschillen zijn gevonden tussen de drie groepen voor het switchen van de voedingsfles naar de beker.

Een eerst theoretisch model voor het MIM programma is getest met gebruik van moederlijke en kinderlijke kenmerken samen met sociale steun. Sociale steun van partner, en van het eigen sociale netwerk en het kinderlijke temperament blijken de belangrijkste factoren te zijn bij het opvoeden en verzorgen van een eerste kind. Ingrediënten voor verdere ontwikkeling van het model zijn aanwezig en er is scope voor verder onderzoek.

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**Conclusies en aanbevelingen**  
Conclusies en aanbevelingen voor praktijk, theorieontwikkeling en onderzoek en voor beleidsmakers passeren de revue.

**Conclusies en aanbevelingen voor praktijk**
Voorzichtige conclusies zijn getrokken rond de doelmatigheid van het programma.

1. **MIM wordt uitgevoerd als methode in de zuigelingenzorg, maar de doelstellingen van het programma voldoen niet aan de RUMBA-eisen.**

2. **De coördinatoren en wijkverpleegkundige JGZ gebruiken de omschrijving van doelgroepen als criterium om moeders te indiceren voor het MIM programma.**
   Het advies is om huidige impliciete (sub)doelstellingen zo te formuleren dat zij passen in de objectieve landelijke doelstellingen (volgens de rumba eisen), om de effecten van het MIM programma in de toekomst opnieuw te meten en een kosten - baten analyse mogelijk te maken.

3. **De bezoekmoeders krijgen niet de gelegenheid hun eigen expertise als bezoekmoeder te ontwikkelen, omdat zij te weinig programmamoeders bezoeken.**
   Het MIM programma bereikt niet, zoals was aangenomen, 30 % van alle eerste moeders in de participerende gebieden.
   Het advies is om het aantal programmamoeders per bezoekmoeder te verhogen. Het streven moet zijn om alle geïndiceerde moeders een plek te geven in het programma.
   Coördinatoren geven aan dat potentiële bezoekmoeders gemiddeld 0.5 dagdeel per week beschikbaar moeten zijn. Daarbij geldt dat minstens één, maar liefst meer programmamoeders bezocht worden per week. Het bereik van het programma wordt belemmerd omdat het aantal bezoekmoeders geënt is op de omvang van de Fte coördinator en op het aantal potentiële gebruikers van het MIM programma (vrouwen die voldoen aan de criteria van te bereiken doelgroepen). Consequentie: het programma wordt niet aan iedere moeder uit de doelgroepen aangeboden en de deur is dicht voor nieuwe programmamoeders als de bezoekmoeders geen plaats hebben.

4. **Ervaren bezoekmoeders dreigen verloren te gaan door stopzetting van activiteiten na 3 - 4 jaar.**
   Het advies is om de bezoekmoeders rol uit te bouwen, zodat ervaren bezoekmoeders niet verloren gaan voor het programma.

5. **Monitor het programma periodiek.**
   Het advies is om proces evaluaties van de instellingen in verpleegkundige of andere vaktijdschriften te publiceren. Hierdoor worden de overeenkomsten en verschillen per organisatie inzichtelijk.

**Conclusies en aanbevelingen voor theorie ontwikkeling en onderzoek**

1. **Sociale ondersteuning en het temperament van het kind hebben een relatie met de onafhankelijke factoren, maar de verwachte feedback van de onafhankelijke factoren naar de sociale steun factoren ontbrak.**

2. **De evaluatie heeft de beschermende en bedreigende factoren die in het programma zitten zijn niet onderzocht. Zo'n onderzoek zou inzicht geven over de werkzaamheid van de beeldverhalen en de wijze waarop de bezoekmoeders de informatie introduceert, bediscussieerd en evalueert met de individuele programmamoeder.**

3. **Analyses van het betoog tussen verpleegkundigen - programmamoeders, bezoekmoeders - programmamoeders en coördinatoren - programmamoeders ontbrak. Zo'n analyse zou de wijze van onderlinge informatieoverdracht inzichtelijk maken.**
4 De evaluatie onderzocht niet de wijze waarop de bezoekmoeders de programmamoeders verwezen naar anderen activiteiten (Cb, speel o’theek, crèche, voorschoolse educatieve activiteiten in de buurt). Nauwere samenwerking met andere voorschoolse activiteiten zou het gemeenschappelijk belang van MIM kunnen verhogen en actieve samenwerking kunnen stimuleren.

Nader onderzoek omtrent de vier genoemde punten is gewenst.

Conclusies en aanbevelingen voor beleidsmakers

1 Het MIM programma wordt momenteel als project gefinancierd binnen de zuigelingenzorg of door derden. Dit kan veranderen onder invloed van de verschuiving van AWBZ naar WPCV financiering. Transparantie van de MIM activiteiten en de voortgang van het programma kan financiering onder de WPCV bewerkstellingen, vooral als de gebruikers (programmamoeders) tevreden zijn en effecten vastgesteld worden. Indicaties voor succes zijn aanwezig, maar moeten op een later tijdstip opnieuw worden vastgesteld.

2 Om de voortgang van het MIM programma te kunnen garanderen moeten andere verpleegkundigen in de organisatie op de hoogte zijn van de werkwijzen en filosofie van het programma. Aangezien de werkwijze en filosofie aansluiten bij de nieuwe rol opvatting van verpleegkundigen op niveau 5 (beroepsmatig competentie inzake de GVO) zou dat geen problemen hoeven op te leveren. Hierdoor is continuïteit van het programma gegarandeerd als een vacature MIM coördinator ontstaat of de coördinator ziek is.

3 Overwogen kan worden dat iedere wijkverpleegkundige zelf op den duur bezoekmoeders begeleidt die ingezet worden bij moeders die in het verleden geholpen werden onder het kopje 'bijzondere zorg' (zie omschrijving doelgroepen).

4 Er moet gewaakt worden dat binnen één organisatie twee soortgelijke activiteiten gestart worden die elkaar beconcurreren. Dit heeft belemmeringen in rekrutering tot gevolg. Verschillen in indicatie zouden gebruikt kunnen worden om de verschillende doelgroepen voor beide activiteiten te scheiden / identificeren.

5 Het MIM programma stimuleert moeders mandaat / beslissen te nemen omtrent henzelf en hun baby's. Bezoekmoeders zijn in het programma gegroeid als PR-functionaris, zijn actief in de rekrutering en voorbereiding van nieuwe bezoekmoeders en spelen een belangrijke rol in de kwaliteitsborging van het Cb. In lijn met internationale WHO aanbevelingen zou een volgende stap kunnen zijn de bezoekmoeders meer te integreren in het beleidsproces van het MIM programma en te kijken of een gedeelde verantwoordelijkheid voor de uitvoering van het MIM programma mogelijk is.
Appendices
Appendix I

Overview of mean values of baseline and T3 outcome variables

Mean values of outcome variables in T1 + T2 and T3 of three intervention groups in MIM-evaluation

<table>
<thead>
<tr>
<th></th>
<th>Baseline T1 N = 346, T2 N = 260</th>
<th>Post-test (T3) T3 N = 222</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MIM</td>
<td>Control I</td>
</tr>
<tr>
<td>Maternal / Infant Indicators</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Infant general health</td>
<td>4.53 N=36</td>
<td>4.55 N=163</td>
</tr>
<tr>
<td>Maternal Competence in Parenting</td>
<td>31.20 N=41</td>
<td>34.94 N=156</td>
</tr>
<tr>
<td>Locus of Control</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Satisfaction with Clinic</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Length at 15 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Weight at 15 months</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 7.1 Mean values of outcome variables in T1 + T2 and T3 of three intervention groups in MIM-evaluation, T1 N = 346, T2 N = 260, T3 N = 222
Mean values of mediating variables in pre- and post-test of three intervention groups

<table>
<thead>
<tr>
<th></th>
<th>Baseline  T1 N = 346, T2 N = 260</th>
<th>Post-test (T3) T3 N = 222</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>MIM</td>
<td>Control I</td>
</tr>
<tr>
<td>Social Support</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SSL-i</td>
<td>77.51 N=41</td>
<td>79.56 N=219</td>
</tr>
<tr>
<td>SSL-n</td>
<td>10.00 N=39</td>
<td>9.08 N=159</td>
</tr>
<tr>
<td>Partner's caring support</td>
<td>4.51 N=39</td>
<td>4.74 N=216</td>
</tr>
<tr>
<td>Partner's household support</td>
<td>4.36 N=39</td>
<td>4.66 N=216</td>
</tr>
<tr>
<td>Lack of support</td>
<td>49.00 N=40</td>
<td>41.71 N=214</td>
</tr>
<tr>
<td>Too much support</td>
<td>1.17 N=40</td>
<td>0.56 N=214</td>
</tr>
<tr>
<td>Temperament</td>
<td>162.78 N=41</td>
<td>163.69 N=156</td>
</tr>
</tbody>
</table>

Table 7.1  Mean values of outcome variables in T1 + T2 and T3 of three intervention groups in MIM-evaluation, T1 N = 346, T2 N = 260, T3 N = 222
Appendix II

Additional information on outcome factors

Maternal mental health at T1
The T1 exploratory GHQ model identified three additional factors having a positive relation with 'lack of support' (R² = 0.225, adj. R² = 0.209, F; (7,327) = 13.59, p = 0.000; see table 7.2). One of these, having had an infant in an incubator was significant. The other factors, being a single parent and perceived to receive too much social support were at 9% and 8% respectively.

Explaining the 'longitudinal' differences maternal mental health (T3-T1)
The exploratory maternal mental health T3 model gives additional information. Having a baby with a higher than average birth weight increased maternal mental health at 10% significance level, whilst those who had a baby with low birth weight impacted negatively. This is understandable, as mothers are usually worried when the birth weight is too low, as it has a direct relationship with infant’s health. Birth weight was having a more significant relation with mental health in the T1 model (p = 0.005) than in both T3 and the differences between T3 and T1 models. The children’s weight remains important as the child becomes older. Having a child with an easy temperament has a relation with maternal mental health at 9%. The positive significant relation with encountering negative interactions from members of the mother’s social network on mental health was unexpected.

Maternal satisfaction with the well baby clinic at T3
MIM would stimulate constructive criticism on well baby clinic activities so that mothers ask appropriate questions needing nursing or medical expertise. The expectations of the MIM mothers may possibly have been high and this may have resulted in disappointment. Quite a lot of mothers do not associate the MIM programme as being one of the activities offered through the clinic. The MIM programme is often seen as a stand-alone programme according to the co-ordinators.

Negative interactions
Negative comments relate to interactions concerning experiencing disapproving or cool reactions, a failed appointment, reproachful comments, or interference from members of the wider network. Comments on the questionnaire indicate that the team members of the well-baby clinic are incorporated within this wider network. Mothers having the value for the partner's caring activities missing would have received less negative comments.
Appendix III

Theoretical model maternal mental health

<table>
<thead>
<tr>
<th>Maternal characteristics</th>
<th>Infant characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life events during pregnancy</td>
<td>Gender, birth weight</td>
</tr>
<tr>
<td>Lifestyle indicators: smoking and alcohol use during pregnancy</td>
<td>Hospital confinement, complications and incubator use</td>
</tr>
<tr>
<td>Cultural background</td>
<td>Infant temperament</td>
</tr>
<tr>
<td>Age, education, private health insurance, single or two-parents family</td>
<td></td>
</tr>
<tr>
<td>Partner's social support</td>
<td>Social support interactions</td>
</tr>
<tr>
<td>Caring activities</td>
<td>Social support discrepancies</td>
</tr>
<tr>
<td>Household activities</td>
<td>Lack of support Too much support</td>
</tr>
<tr>
<td>Social support interactions</td>
<td>Negative social interactions</td>
</tr>
<tr>
<td>Maternal mental health</td>
<td>Maternal general health</td>
</tr>
<tr>
<td>Infants general health</td>
<td>Competence with parenting</td>
</tr>
<tr>
<td>Satisfaction with the well-baby clinic</td>
<td></td>
</tr>
</tbody>
</table>
Appendix IV

Maternal general health

Maternal characteristics

- Life events during pregnancy
- Lifestyle indicators: smoking and alcohol use during pregnancy
- Cultural background
  - Age, education, private health insurance, single or two-parents family
- Partner's social support
  - Caring activities
  - Household activities
- Social support interactions
- Social support discrepancies
  - Lack of support
  - Too much support
- Negative social interactions

Infant characteristics

- Gender, birth weight
- Hospital confinement, complications and incubator use
- Infant temperament
- Competence with parenting
- Satisfaction with the well-baby clinic
Appendix V

Theoretical model for Infant general health

Maternal characteristics

- Life events during pregnancy
- Lifestyle indicators: smoking and alcohol use during pregnancy
- Cultural background: Age, education, private health insurance, single or two-parents family
- Partner’s social support
  - Caring activities
  - Household activities
- Social support interactions

Infant characteristics

- Gender, birth weight
- Hospital confinement, complications and incubator use
- Infant temperament
- Social support discrepancies
  - Lack of support
  - Too much support
- Negative social interactions
- Maternal mental health
- Maternal general health
- Infant general health
- Competence with parenting
- Satisfaction with the well-baby clinic
Appendix VI

Theoretical model for maternal competence with parenting

<table>
<thead>
<tr>
<th>Maternal characteristics</th>
<th>Infant characteristics</th>
</tr>
</thead>
<tbody>
<tr>
<td>Life events during pregnancy</td>
<td>Gender, birth weight</td>
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<td>Lifestyle indicators: smoking and alcohol use during pregnancy</td>
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</tr>
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<td>Cultural background</td>
<td>Infant temperament</td>
</tr>
<tr>
<td>Age, education, private health insurance, single or two-parents family</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Partner's social support</th>
<th>Social support interactions</th>
<th>Social support discrepancies</th>
<th>Negative social interactions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Caring activities</td>
<td>Household activities</td>
<td>Lack of support</td>
<td>Too much support</td>
</tr>
</tbody>
</table>

| Maternal mental health | Maternal general health | Infant general health | Competence with parenting | Satisfaction with the well-baby clinic |
Appendix VII

Theoretical model maternal satisfaction with the well baby clinic

Maternal characteristics

- Life events during pregnancy
  - Lifestyle indicators:
    - smoking and alcohol use during pregnancy
  - Cultural background
    - Age, education, private health insurance, single or two-parents family

- Partner's social support
- Social support interactions
- Household activities

Infant characteristics

- Gender, birth weight
- Hospital confinement, complications, and incubator use
- Infant temperament
- Social support discrepancies
  - Lack of support
  - Too much support
- Negative social interactions

- Maternal mental health
- Maternal general health
- Infant general health
- Competence with parenting
- Satisfaction with the well-baby clinic
Appendix VIII

Lacking social support model

Maternal characteristics

- Life events during pregnancy
- Lifestyle indicators:
  - smoking and alcohol use during pregnancy
- Cultural background
  - Age, education, private health insurance, single or two-parents family
- Partner's social support
  - Caring activities
  - Household activities
- Social support interactions
- Social support discrepancies
  - Lack of support
  - Too much support

Infant characteristics

- Gender, birth weight
- Hospital confinement, complications and incubator use
- Infant temperament
- Maternal mental health
- Maternal general health
- Infant general health
- Competence with parenting
- Satisfaction with the well-baby clinic
Curriculum vitae

Marian H. Hanrahan, nee Cahuzak was born on November 15 1950 in Amsterdam, Netherlands as a stevedore's daughter. She received her education at the St Maria vocational training college in Zaandam, nurse training at St Luke's Hospital in Amsterdam, and a community nursing certificate at the higher vocational training college (BSc in Nursing) in Enschede. From 1975 to 1989 she lived with her family in Dublin, Ireland. Here she was actively involved in community based and led activities: helping to start a community development association, a fruit - and vegetable co-operative and community activities for inexperienced and lone-parents. In 1985 she received her MSc in community health at the University of Dublin, Trinity College. Marian worked for the Eastern Health Board as a Family Development Nurse in the Community Mothers Programme. Afterwards she moved to the Netherlands with her husband and two children. From 1989 to 1997 she worked as policy advisor for the National Nurses Organisation and the LVT (National Association for Home Care and Community Nursing and the Dutch Ministry of Health. Research activities were carried out on the distribution of labour within a community nursing setting and the assessment on whether nurses were documenting nursing activities according to a standardised nursing process. In the Ministry of Health Marian was a co-ordinator and senior principal officer dealing with professional nursing development, national nursing policy, the establishment of the National Expertise Centre for Nursing (LCV), and monitoring nursing practice. As a preparation for her PhD study Marian worked as a national co-ordinator for the dissemination of the Mother's Inform Mothers programme (MIM) at the Netherlands Institute for Care and Welfare / NIZW in Utrecht.
We gratefully acknowledge the use of the photograph (1955) on the front cover by Pal-Nils Nilsson.