TODDLER MALNUTRITION AND THE PROTEIN-ENERGY MALNUTRITION (PEM) PROGRAMME IN THE VOSLOORUS TOWNSHIP

by

SOPHIE ELSIE NKONDE

submitted in fulfilment of the requirements for the degree of

MASTER OF ARTS IN NURSING SCIENCE

at the

UNIVERSITY OF SOUTH AFRICA

SUPERVISOR: PROF MVLH LOCK

JOINT SUPERVISOR: PROF LJ KING

JANUARY 1998
I declare that *TODDLER MALNUTRITION AND THE PROTEIN-ENERGY MALNUTRITION (PEM) PROGRAMME IN THE VOSLOORUS TOWNSHIP* is my own work and that all the sources that I have used or quoted have been indicated and acknowledged by means of complete references.

SIGNATURE
(SE NKONDE)

DATE
30 January 1998
SUMMARY

TODDLER MALNUTRITION AND THE PROTEIN-ENERGY MALNUTRITION (PEM) PROGRAMME IN THE VOSLOORUS TOWNSHIP

STUDENT: SE Nkonde
DEGREE: Master of Arts in Nursing Science
DEPARTMENT: Advanced Nursing Sciences, University of South Africa
SUPERVISOR: Prof MVLH Lock
JOINT SUPERVISOR: Prof LJ King

The prevalence of Protein-Energy Malnutrition (PEM) in South Africa has been well-described in previous research studies and yet little is known about the nutritional status of toddlers in the Vosloorus Township.

Using the research questions as the conceptual framework for the study, an exploratory descriptive survey was conducted to determine.

• What factors give rise to malnutrition in the Vosloorus Township?
• Why do toddlers on the PEM Programme fail to achieve their expected target weight?

Data was collected by means of structured interviews from a sample of 50 mothers in the Vosloorus Township whose toddlers were on the PEM Programme. The findings indicated that the poor socio-economic conditions of the majority of households, especially unemployment, low levels of education and ignorance, contributed towards the development of malnutrition amongst toddlers and their failure to thrive on the PEM Programme. Recommendations to reduce levels of malnutrition and transform existing nutrition programmes were made.

Key terms:

Child health clinics; growth monitoring; failure to thrive; micronutrient deficiencies; political, socio-economic, household and environmental factors; supplementary feeding; health education; nutrition intervention programmes.
ACKNOWLEDGEMENTS

My sincere thanks goes to my Lord and my God for being a constant source of strength.

I wish to express my sincere gratitude and appreciation to all the people, including all the respondents, who contributed in so many ways to the completion of this study. In particular, I would like to thank the following people:

○ Prof Margo Lock, my supervisor, for her dedication, guidance, support and encouragement throughout the research project.

○ Prof Laetitia King, my joint supervisor, for her openness and valuable input.

○ Dr Raath and Mrs Jordaan from the Department of Statistics, Unisa, for their assistance.

○ Ms Berra Kemp and the Department of Computer Services, Unisa, for their assistance.

○ Mrs Iauma Cooper for editing the dissertation.

○ Mrs Rina Coetzer for her expert services in typing, the layout and presentation of the dissertation.

○ My colleagues from the Health Services Department, Transitional Local Council Boksburg for their moral support, especially: Ms L Caetano, Mrs L Mkabela and Mrs G Mosia for their incessant willingness to help.

○ My family and friends for their support and encouragement.
TABLE OF CONTENTS

CHAPTER 1
The problem and the purpose of the study

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.1 INTRODUCTION</td>
<td>1</td>
</tr>
<tr>
<td>1.2 STATEMENT OF THE PROBLEM, CONCEPTUAL FRAMEWORK AND RESEARCH QUESTIONS</td>
<td>3</td>
</tr>
<tr>
<td>1.3 PURPOSE AND OBJECTIVES OF THE STUDY</td>
<td>3</td>
</tr>
<tr>
<td>1.4 SIGNIFICANCE OF THE STUDY</td>
<td>3</td>
</tr>
<tr>
<td>1.5 BASIC ASSUMPTIONS</td>
<td>4</td>
</tr>
<tr>
<td>1.6 DEFINITION OF TERMS AND CONCEPTS</td>
<td>5</td>
</tr>
<tr>
<td>1.7 CONCLUSION</td>
<td>6</td>
</tr>
<tr>
<td>1.8 OVERVIEW OF THE STUDY</td>
<td>6</td>
</tr>
</tbody>
</table>

CHAPTER 2
Literature review

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.1 INTRODUCTION</td>
<td>7</td>
</tr>
<tr>
<td>2.2 CONCEPTUAL FRAMEWORK</td>
<td>8</td>
</tr>
<tr>
<td>2.3 FACTORS GIVING RISE TO MALNUTRITION</td>
<td>8</td>
</tr>
<tr>
<td>2.3.1 Political factors and malnutrition</td>
<td>8</td>
</tr>
<tr>
<td>2.3.2 Socio-economic factors and malnutrition</td>
<td>11</td>
</tr>
<tr>
<td>2.3.2.1 Educational level and malnutrition</td>
<td>11</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

2.3.2.2 Occupation, employment and malnutrition ................................................. 12
2.3.2.3 Income levels and malnutrition ................................................................. 13
2.3.3 Environmental factors and malnutrition ......................................................... 15
2.3.3.1 The interaction of malnutrition and diseases .............................................. 15
2.3.3.2 Hygiene standards and malnutrition ............................................................. 15
2.4 FACTORS THAT PREVENT THE SUCCESSFUL IMPLEMENTATION OF THE PEM PROGRAMME ................................. 16
2.4.1 Protein-Energy Malnutrition (PEM) Programme ............................................... 16
2.4.2 Background of the mothers of toddlers on the PEM Programme ..................... 17
2.4.2.1 The mothers’ knowledge and malnutrition .................................................. 17
2.4.2.2 Family size and malnutrition .................................................................... 18
2.4.2.3 Weaning methods and malnutrition ............................................................. 20
2.4.2.4 Introduction of solids and malnutrition ....................................................... 21
2.5 CONCLUSION ................................................................................................. 22

CHAPTER 3
Research methodology

3.1 INTRODUCTION ............................................................................................... 23
3.2 RESEARCH METHODOLOGY .......................................................................... 24
3.3 POPULATION AND SAMPLING METHOD ...................................................... 24
3.4 DATA COLLECTION ......................................................................................... 25
TABLE OF CONTENTS

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.4.1</td>
<td>Research instrument</td>
<td>25</td>
</tr>
<tr>
<td>3.4.2</td>
<td>Development of the research instrument</td>
<td>26</td>
</tr>
<tr>
<td>3.4.3</td>
<td>Pre-testing the research instrument</td>
<td>27</td>
</tr>
<tr>
<td>3.4.3.1</td>
<td>Validity of the research instrument</td>
<td>28</td>
</tr>
<tr>
<td>3.4.3.2</td>
<td>Reliability</td>
<td>28</td>
</tr>
<tr>
<td>3.4.4</td>
<td>Permission for the study</td>
<td>29</td>
</tr>
<tr>
<td>3.4.5</td>
<td>Problems encountered with data collection</td>
<td>29</td>
</tr>
<tr>
<td>3.4.6</td>
<td>Ethical considerations</td>
<td>29</td>
</tr>
<tr>
<td>3.5</td>
<td>ANALYSIS OF DATA</td>
<td>30</td>
</tr>
<tr>
<td>3.6</td>
<td>CONCLUSION</td>
<td>30</td>
</tr>
</tbody>
</table>

CHAPTER 4

Analysis and presentation of data

<table>
<thead>
<tr>
<th>Section</th>
<th>Title</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>4.1</td>
<td>INTRODUCTION</td>
<td>31</td>
</tr>
<tr>
<td>4.2</td>
<td>SECTION 1: DEMOGRAPHIC DETAILS OF THE MOTHERS OF TODDLERS</td>
<td>32</td>
</tr>
<tr>
<td>4.3</td>
<td>SECTION 2: DETAILS OF TODDLERS ON THE PEM PROGRAMME</td>
<td>49</td>
</tr>
<tr>
<td>4.4</td>
<td>SECTION 3: KNOWLEDGE OF THE PEM PROGRAMME BY THE MOTHERS OF TODDLERS</td>
<td>71</td>
</tr>
<tr>
<td>4.5</td>
<td>SECTION 4: MOTHERS' SATISFACTION SCALE ON THE SERVICES PROVIDED</td>
<td>76</td>
</tr>
</tbody>
</table>
TABLE OF CONTENTS

4.6 CONCLUSION ......................................................... 79

CHAPTER 5

Conclusions, recommendations and limitations of the study

5.1 INTRODUCTION ......................................................... 80
5.2 CONCLUSIONS ......................................................... 81
5.2.1 Demographic details of the mothers of toddlers
      (Section 1: Items 1.1 to 1.22) .................................. 81
5.2.2 Details of toddlers on the PEM Programme
      (Section 2: Items 2.1 to 2.25) .................................. 84
5.2.3 Knowledge of the PEM Programme by mothers of toddlers
      (Section 3: Items 3.1 to 3.9) .................................. 89
5.2.4 Mothers' satisfaction scale on the services provided
      (Section 4: Items 4.1 to 4.3) .................................. 91
5.2.4.1 Assessment of clinic services (Item 4.1) ................. 91
5.2.4.2 Assessment of services offered by nurses (Item 4.2) .... 91
5.2.4.3 Assessment of the PEM Programme (Item 4.3) .......... 92
5.3 LIMITATIONS IDENTIFIED DURING THE STUDY ............. 93
5.4 RECOMMENDATIONS ARISING FROM THE RESEARCH PROJECT ........................................ 94
5.5 RECOMMENDATIONS FOR FUTURE RESEARCH ............... 96
5.6 CONCLUSION ......................................................... 99

LIST OF REFERENCES ........................................... 100
LIST OF TABLES

Table 3.1: Format of the questionnaire ........................................ 27
Table 4.1: Total number of people in the households of toddlers (n = 50) .... 34
Table 4.2: Average household income per month (n = 50) ................... 42
Table 4.3: Other sources of income of mothers of toddlers (n = 50) ........ 43
Table 4.4: Educational standard of the mothers of toddlers (n = 50) ......... 48
Table 4.5: Age of weaning of toddlers (N = 31) ............................. 55
Table 4.6: Abrupt weaning methods used by the mothers of toddlers (N = 18) 56
Table 4.7: Assessment of clinic services (n = 50) ............................ 76
Table 4.8: Assessment of services offered by nurses (n = 50) ................ 77
Table 4.9: Assessment of the PEM Programme (n = 50) ..................... 78
| Figure 4.1:  | Ages of the mothers of toddlers (n = 50) | 32 |
| Figure 4.2:  | Marital status of the mothers of toddlers (n = 50) | 33 |
| Figure 4.3:  | Number of toddlers in the age group one to four years per household (n = 50) | 35 |
| Figure 4.4:  | Type of accommodation of the mothers of toddlers (n = 50) | 37 |
| Figure 4.5:  | Living arrangements of mothers without their own accommodation (N = 33) | 38 |
| Figure 4.6:  | Type of toilets available at the homes of toddlers (n = 50) | 40 |
| Figure 4.7:  | Employment status of the mothers of toddlers (n = 50) | 41 |
| Figure 4.8:  | Alcohol intake of the mothers of toddlers during pregnancy (n = 50) | 44 |
| Figure 4.9:  | Smoking habits of the mothers of toddlers during pregnancy (n = 50) | 45 |
| Figure 4.10: | Complications of the mothers of toddlers during pregnancy (n = 50) | 46 |
| Figure 4.11: | Complications of the mothers of toddlers during labour (n = 50) | 47 |
| Figure 4.12: | Ages of the toddlers in months (n = 50) | 49 |
| Figure 4.13: | Type of feed of toddlers (N = 48) | 50 |
| Figure 4.14: | Age of introduction of solids to the diet of toddlers (n = 50) | 51 |
| Figure 4.15: | Type of solids given to toddlers (n = 50) | 52 |
| Figure 4.16: | Breastfeeding status of toddlers (n = 50) | 54 |
| Figure 4.17: | Care givers of toddlers (n = 50) | 57 |
| Figure 4.18: | Birth weight of toddlers in kilograms (N = 47) | 59 |
LIST OF FIGURES

Figure 4.19: Gestational age of toddlers (n = 50) ........................................ 60
Figure 4.20: Incidence of diarrhoea in the last three months amongst
toddlers (n = 50) ........................................ 62
Figure 4.21: Hospitalisation of toddlers since birth (n = 50) ......................... 63
Figure 4.22: Toddlers' age at commencement of the PEM Programme (n = 50) . 64
Figure 4.23: Number of months toddlers had been on the PEM Programme
(N = 49) ........................................ 65
Figure 4.24: Other children in the family fed from the PEM supplementary feed
(n = 50) ........................................ 66
Figure 4.25: Weight gain of toddlers at each visit to the clinic (N = 49) ............ 68
Figure 4.26: Weight problems of siblings (n = 50) ........................................ 70
### LIST OF ABBREVIATIONS

<table>
<thead>
<tr>
<th>Abbreviation</th>
<th>Explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>CBNP</td>
<td>Community-based Nutrition Programme</td>
</tr>
<tr>
<td>F</td>
<td>Frequency</td>
</tr>
<tr>
<td>FAO</td>
<td>Food and Agriculture Organisation</td>
</tr>
<tr>
<td>HFBP</td>
<td>Health Facility-based Programme</td>
</tr>
<tr>
<td>IDMT</td>
<td>Interim District Management Team</td>
</tr>
<tr>
<td>INS</td>
<td>Integrated Nutrition Strategy</td>
</tr>
<tr>
<td>n</td>
<td>Total sample</td>
</tr>
<tr>
<td>N</td>
<td>Portion of the sample</td>
</tr>
<tr>
<td>NCHS</td>
<td>National Centre for Health Statistics</td>
</tr>
<tr>
<td>NHS</td>
<td>National Health System</td>
</tr>
<tr>
<td>NNSDP</td>
<td>National Nutrition and Social Development Programme</td>
</tr>
<tr>
<td>PEM</td>
<td>Protein-Energy Malnutrition</td>
</tr>
<tr>
<td>RDP</td>
<td>Reconstruction and Development Programme</td>
</tr>
<tr>
<td>SAS</td>
<td>Statistical Analysis System</td>
</tr>
<tr>
<td>Unisa</td>
<td>University of South Africa</td>
</tr>
<tr>
<td>WHO</td>
<td>World Health Organisation</td>
</tr>
</tbody>
</table>
LIST OF ANNEXURES

Annexure A: Community-based Nutrition Programme

Annexure B: Circular 22/1991: The State Subsidised Scheme for the Combating of Protein-Energy Malnutrition

Annexure C: Questionnaire

Annexure D: Request for permission (Transitional Local Council of Boksburg)
CHAPTER 1

The problem and the purpose of the study

1.1 INTRODUCTION

Malnutrition is one of the greatest health problems in South Africa and a major problem amongst children in developing countries worldwide. Burgess, Ireland and Hoogenhout (1988:28), Hoare (1994:102), Kassouf and Senauer (1996:817), Walker and Bach (1990:49) and others are of the opinion that growth failure affects an estimated one-third of the preschool children in developing countries, including South Africa.

Bates and Arellano (1995:38) state that nearly 40,0% of the world's population suffer from micronutrient deficiencies whilst Protein-Energy Malnutrition (PEM) affects some 786 million people and causes approximately 12,9 million child deaths each year. Similarly, the United Nations Food and Agriculture Organisation (FAO) states that starvation and malnutrition-related diseases claim between 14 and 20 million victims each year, of whom, half are children under the age of five (Roberts 1995:3). According to Marshall (1995:83),
the National Health Forum reported that the nutritional situation in South Africa showed that the level of PEM is unacceptably high for a middle-income country. Adequate nutritional data at national level had not been collected, but available evidence indicated that between 25.0% and 50.0% of children under five suffered from PEM with all its recognised consequences for their future health and development. However, little is known about the nutritional status of children under five in the Vosloorus Township which is an urban area situated south of Boksburg in the East Rand Region, Gauteng Province.

Unemployment and poverty are the biggest problems facing South Africa. The Department of Welfare pays social grants and pensions to three million South Africans in poor households every month (African National Congress 1994b:14; Department of Welfare 1997a:3). It is therefore not surprising that the vast majority of children under five are below the 5th percentile of the National Centre for Health Statistics (NCHS) reference standards and are consequently identified as mild to moderate PEM. PEM is only diagnosed in those children who attend the child health clinics regularly. However, the researcher established in the Vosloorus Township that the majority of children under five, especially those from informal settlements, do not attend the child health clinics regularly. This may be due to high migration from one area to another with the result that many of these children with mild forms of PEM go unnoticed.

Newman (1995:233) is of the opinion that most researchers would agree that PEM includes a range of syndromes among infants and preschool children who display growth and biochemical abnormalities produced by synergistic effects of dietary deficiencies and various infections. Tolboom (1986:21) is also of the opinion that many factors other than just dietary factors are involved in causing PEM. Tolboom suggests that it might be more realistic to view PEM as an environmental disease. Mild to moderate PEM is classified as the subclinical syndromes of PEM, the clinical syndromes are known as kwashiorkor, marasmus and a range of mixed types known as marasmic kwashiorkor. According to the researcher's own experience in the Vosloorus Township, mild to moderate PEM is the syndrome most commonly experienced in the child health clinics.
1.2 STATEMENT OF THE PROBLEM, CONCEPTUAL FRAMEWORK AND RESEARCH QUESTIONS

The problem that gave rise to this study is the high incidence of toddler malnutrition experienced in the child health clinics in the Vosloorus Township and the fact that the majority of children on the PEM Programme do not achieve their expected target weight and remain on the PEM Programme indefinitely.

The following research questions summarise the problem and form the conceptual framework of the study:

• What factors give rise to malnutrition amongst toddlers in the Vosloorus Township?

• Why do toddlers on the PEM Programme in the Vosloorus Township fail to achieve their expected target weight?

1.3 PURPOSE AND OBJECTIVES OF THE STUDY

The purpose of the study was to analyse the reasons why the PEM Programme is not successful in combating malnutrition amongst toddlers in the Vosloorus Township.

The objectives of the study were to determine the factors that

• give rise to toddler malnutrition in the Vosloorus Township

• prevent toddlers from achieving their expected target weight in the Vosloorus Township

1.4 SIGNIFICANCE OF THE STUDY

Once the causes of toddler malnutrition and the reasons for the failure of the PEM Programme in the Vosloorus Township have been established, the problem can be addressed
by making recommendations to the Department of Health on how the PEM Programme can be made more effective for local circumstances, namely by

- developing new strategies and special educational health programmes for the prevention of malnutrition
- giving support to the mothers/care givers of children suffering from malnutrition

1.5 BASIC ASSUMPTIONS

In this study, the following assumptions were made:

1. Abrupt weaning of children with or without maternal separation has a negative effect on the eating pattern of toddlers in the Vosloorus Township.

2. The mothers' ignorance of the introduction of solids into the diet of toddlers causes malnutrition.

3. The low socio-economic status of the family affects the nutritional status of the toddler.

4. The composition of the family influences the implementation of the PEM Programme in the Vosloorus Township.

5. The ignorance of the mothers affects the implementation of the PEM Programme and subsequently the weight gain of toddlers in the Vosloorus Township.

6. Unhygienic living conditions contribute to diseases and toddler malnutrition in the Vosloorus Township.
1.6 DEFINITION OF TERMS AND CONCEPTS

**Toddler:** The *Reader's Digest Dictionary* (1993:1640) defines a toddler as a “child who is just beginning to walk”. For the purpose of this study, a toddler refers to a male or female child between the ages of 1 and 4 years who is on the PEM Programme and lives in the Vosloorus Township.

**Malnutrition:** The *Reader's Digest Oxford Dictionary* (1993:925) defines malnutrition as a “dietary condition resulting from the absence of some foods or essential elements necessary for health”. Kuzwayo (1994:22) defines malnutrition as an “outcome of complex biological and social problems. Inadequate dietary intakes and diseases are the immediate causes or determinants of malnutrition”. Simply stated, malnutrition is a deficient intake of energy and nutrients. For the purpose of this study, malnutrition shall refer to Protein-Energy Malnutrition. The term **Protein-Energy Malnutrition (PEM)** is currently applied to the spectrum of conditions that range from the underweight child to the syndromes of kwashiorkor, marasmic kwashiorkor and marasmus (Hansen 1995:2).

The **PEM Programme** is a state-subsidised clinic-based food supplementation programme used in all child health clinics.

**Vosloorus Township** is part of Boksburg, a city in the Gauteng Province.

**Anthropometry:** The *Reader's Digest Oxford Dictionary* (1993:57) defines anthropometry as “the scientific study of the measurements of the human body”.

According to the World Health Organisation (WHO), anthropometric measurements to assess growth and development in young children are the most widely used indicators of nutritional status in the community (Setswe 1994:33).

An anthropometric measure of nutritional status used to assess child growth for this study is the **weight for age percentage**. Weight for age percentage reflects both the cumulative
effects of episodes of undernutrition or chronic under-nutrition since birth and current under-nutrition (De-Onis; Monteiro, Akre & Glugston 1993:703; Setswe 1994:33).

1.7 CONCLUSION

This chapter discusses the background, statement of the problem, conceptual framework, the purpose and the significance of the study.

1.8 OVERVIEW OF THE STUDY

The study is presented as follows:

- Chapter 1 is the introductory chapter and discusses the problem, conceptual framework, the purpose and the significance of the study. The objectives of the study are stated and specific terms or concepts are explained.

- Chapter 2 consists of an extensive literature review related to the field of study of this dissertation. Specific attention is given to national (local) and international views on aspects relevant to this dissertation.

- Chapter 3 describes the research methodology applied in the study and discusses the study design, sampling method and data collection.

- Chapter 4 presents an analysis and interpretation of the data collected.

- Chapter 5 presents conclusions and recommendations arising from the research project and limitations of the study. Specific recommendations for further research are also presented.
CHAPTER 2

Literature review

2.1 INTRODUCTION

Data required for the literature review was identified with the aid of the following computer-assisted database bibliographies:

- University of South Africa (Unisa) Library search, which included CD ROM searches of references to South African material, periodical articles and books, books in the Unisa Library and material in South African libraries as well as in international libraries

- Human Sciences Research Council

- South African Nurse's Association Library search
The major area of reference is related to malnutrition amongst toddlers in the Vosloorus Township and in particular those toddlers placed on the PEM Programme. The literature search revealed that considerable research has been done on child malnutrition worldwide, but that there was limited research done on children on food supplementation programmes in Africa and no research on the PEM Programme in South Africa.

2.2 CONCEPTUAL FRAMEWORK

The discussion in this chapter is based on the following research questions:

- What factors give rise to malnutrition amongst toddlers in the Vosloorus Township?
- Why do toddlers on the PEM Programme in the Vosloorus Township fail to achieve their expected target weight?

2.3 FACTORS GIVING RISE TO MALNUTRITION

This section discusses political and socio-economic aspects as well as environmental determinant of malnutrition with special references to South Africa and the situation in the Vosloorus Township.

2.3.1 Political factors and malnutrition

### Legislation and malnutrition

South Africa's history before the first democratic elections of 1994 has been a bitter one dominated by colonialism, racism, apartheid, sexism and repressive labour policies. The result is that poverty has existed side by side with modern cities and a developed mining, industrial and commercial infrastructure. The legacy of apartheid policies in South Africa created large disparities between racial groups in socio-economic status, occupation, education, housing and health. These policies created a fragmented health system which
resulted in inequitable access to health care. Racial fragmentation expanded in the 1970's and 1980's into the establishment of homelands and the tricameral Parliament, each with its own separate health department, totalling 14 departments of health in South Africa. The Health Act 63 of 1977 was formulated to overcome these problems and to rationalise health care services. The 1990's appeared to be the starting point of a fundamental socio-political reform in South Africa, with a potential to be a democratic, non-racial and a unitary society. The National Policy for Health Act 116 of 1990 opened all health facilities to all population groups. At central level there were nominally four departments of health, one for each racial group. In 1993, with rationalisation, these departments were combined into one. In 1994, the African National Congress’s National Health Plan for South Africa made provision for the creation of a single comprehensive, equitable and integrated National Health System (NHS) as part of its vision for health care in South Africa. Through the NHS it was envisaged that the provision of health care would be coordinated among local, district, provincial and national authorities (African National Congress 1994a:2; Keyter 1992:19, 27, 30; Van Rensburg, Fourie & Pretorius 1992:64-84).

☐ African National Congress’s Reconstruction and Development Programme (RDP)

The African National Congress’s RDP of 1994 is an integrated, coherent socio-economic policy framework that seeks to mobilise all the people and country’s resources toward the final eradication of apartheid and the building of a democratic, non-racial and non-sexist future. One of the key and priority programmes of the RDP is meeting the basic needs of people through the provision of jobs, land, housing, water, electricity, telecommunication, transport, a clean and healthy environment, nutrition, health care and social welfare. The RDP document identified poverty as the single greatest burden of South Africa's people and document through its vision statement and objectives, made attacking poverty and deprivation the first priority of the democratic government (African National Congress 1994b:1, 7-8, 14-15).
The Department of Health maintains that nutrition is a basic human right and a prerequisite for the attainment of a person's physical and intellectual potential. Furthermore it states that "improving nutrition is thus an ethical imperative and a sound economic investment which is politically rewarding". The democratic government of South Africa has given great prominence to nutrition and has committed itself to the elimination of hunger and the reduction of malnutrition among all people of South Africa, particularly women and young children, within the framework of the RDP. This has been demonstrated by President Nelson Mandela's announcement in 1994 of the Primary School Nutrition Programme as one of the Presidential Lead Projects. Approximately R1 billion (7.0% of the health budget) is currently allocated annually to direct nutrition programmes as compared to the R400 million annual budget allocated to the National Nutrition and Social Development Programme (NNSDP) in 1993. The nutrition committee appointed by the national Minister of Health in 1994 proposed an Integrated Nutrition Strategy (INS) for South Africa. The INS's proposals made provision for three interrelated components, namely, a Health Facility-based Programme (HFBP), a Community-based Nutrition Programme (CBNP) and a nutrition promotion programme which is integrated into the HFBP and CBNP and consists of nutrition education and advocacy activities (African National Congress 1994a:48, 85; African National Congress 1994b:41-42; Department of Health 1997:84-92; McLachlan 1994:1; McLachlan & Kuzwayo 1996:37). The CBNP is a fairly new programme in the Vosloorus Township. The Boksburg Interim District Management Team (IDMT), which represents the LA and the Provincial health departments, has been recently involved (since July 1997) in monitoring the programme at district level at the request of the Regional Director, East Rand District Health Services (see Annexure A).

PEM Programme

In broad terms the PEM Programme targets preschool children (children under six years) (Department of Health 1991:10). For the purpose of this study, the PEM Programme is confined to toddlers (children between the ages of one and four years).
2.3.2 Socio-economic factors and malnutrition

Social class or socio-economic status is a universal criterion of division among people and also forms the basis for the differential allocation of power, wealth and scarce resources in societies. Socio-economic status codetermines people's life expectancy, their life chances and the risks of diseases and death. A person's social class or socio-economic status is usually determined by a variety of indicators, but for the purpose of this study it will be indicated by the level of education, occupation and income (Van Rensburg et al 1992:11).

2.3.2.1 Educational level and malnutrition

People's literacy, training and education codetermines the occupation they will hold, their income category, home life styles and living conditions. People with a higher level of education and literacy are usually more informed on diseases and symptoms, are aware of general hygiene and more receptive and accessible to treatment and health care programmes (Cele 1991:15; Dunjwa 1990:7; Van Rensburg et al 1992:114). In general, it seems that a large percentage of the South African Black population function at a very low level of literacy. This can be explained by the existence of a separate education system for Blacks, namely, the Bantu Education Act of 1953 which was inferior to the White education system. It was as a result of this Bantu education system that Black students in Soweto rioted in 1976 against the use of Afrikaans as medium of instruction in Black schools. This was followed by widespread unrest all over the country except the homelands (Keyter 1992:14-15). At present the situation at schools in the Gauteng Province and in the Vosloorus Township appears to be relatively calm.

Van Rensburg et al (1992:11) state that "people's class position is closely linked to the level of education their children will receive, the occupations they will pursue, the income they will earn, the standard of living and the measure of health care their families will receive". Similarly, Benade (1992:22), Burgess et al (1988:31) and Griesel and Richter (1987:14) are in support of this statement. They argue that adults who show reduced work capacity were marginally malnourished as children. They will then remain in the lower socio-economic
classes and their children will, in turn, be at risk of malnutrition with all its associated problems. This becomes a vicious cycle and is a pattern in the researcher's view that appears to be prevalent in the Vosloorus Township as well.

Education is one of the most important factors determining employment and thus income and the nutritional status of an individual (Van Rensburg et al 1992:114).

2.3.2.2 Occupation, employment and malnutrition

Occupation, as part of people's general socio-economic status, plays an important role in the illness and health status of populations. Certain occupations and positions seem to have inherent attributes that act as contributory factors which heighten or lower the risk of certain diseases or death. For example, occupational stress is usually associated with responsible positions (skilled labour) and exposure to hazardous or unhygienic conditions which usually prevails with unskilled labour. Naturally, unskilled labour is paid lower wages and the eventual outcome is a lower socio-economic status for those population groups with the highest representation in the labour sector, namely Coloureds and Blacks. Mention must be made of the fact that in most cases, people's employment and occupations ensure their access to health care by means of medical aid and benefit schemes (Van Rensburg et al 1992:116, 188).

South Africa is characterised by large-scale unemployment in the formal sector of the economy. Unemployment has been severe amongst women, especially those in rural areas and amongst young people under the age of 24. The formal sector of the economy has become less labour-intensive, needing fewer but better skilled people than in the past, to produce the same level of output. The result of this state of affairs is that the economy has not been able to provide sufficient employment opportunities to everyone who wants to work. Unemployment and poverty have increased the vulnerability of many households and many turn to the welfare system for social support. The Department of Welfare's budget can be regarded as a poverty-alleviation budget. Every month the Department pays social grants and pensions to 3 million South Africans in poor households and many women in rural areas.
The Gauteng Province, including Vosloorus Township, has been hit the worst by an alarming rate of urbanisation and squatting with an increase in economic and social problems and a lack of adequate social and economic development programmes (Department of Welfare 1997a:3, 9).

2.3.2.3 Income levels and malnutrition

Income is a co-determinant of people's social class or socio-economic status and as such, of their illness, health and care. Medical and health-related services and amenities are normally unaffordable and therefore less obtainable for members of the lower income categories, of which Blacks form a large proportion of. In addition, a sparse income, low wages and irregular earnings have a direct relationship to undernourishment and malnutrition and, indirectly, to low resistance and a high infant mortality rate. In general, the income structure of South Africa exhibited sharp disparities along racial lines in favour of the White population followed by Asians, Coloureds and lastly, Blacks (Van Rensburg et al 1992:119). According to the Department of Welfare (1997a:3), “poverty is about lack of access, lack of power, lack of income and resources to make choices and take advantage of opportunities”.

Pryer (1990:30) cautions that it is important not to lose sight of the root causes of poverty and malnutrition which, she states, “lie firmly embedded in the unequal distribution of resources nationally and internationally”. Similarly, Dunjwa (1990:5) and Johnston (1995:33) also share the same view. They argue that the problems that lead to nutrition and poverty are social, economic and political.

Low income emerged as the main cause of malnutrition in most of the literature (Griesel & Richter 1987:12; Kassouf & Senauer 1996:832; K’Okul 1991:113; Levinson 1991:7; Musgrove 1989:12; Richter & Griesel 1986a:3). Bloom (1988:chapter 6-1) and Musgrove (1989:12) concur that “income is the main determinant of the quantity and, at times, the quality of the family’s diet and state that it is significantly associated with the prevalence of malnutrition among children”. However, in a study conducted in South India to examine the interaction between nutritional intake and household income, Schiff and Valdés (1990:2)
demonstrated that nutrient intake did not respond to changes in income. They discovered that as income increased, a large number of food expenditure was spent on non-nutrient food attributes such as freshness, taste and convenience foods which save time in preparation.

Bloom (1988:chapter 7-3) maintains that PEM can never be prevented by nutritional means alone. The government will have to effect significant socio-economic readjustments that will involve redistribution of opportunities and resources. This holds true for the South African Government especially as all the problems that we are currently faced with, namely unemployment, illiteracy, urbanisation, illegal immigration, poverty and crime, all stem from the previous apartheid government’s political system. The new democratically elected Government of National Unity is expected to make a difference in the people’s (especially the previously disadvantaged groups) socio-economic conditions, job opportunities, health, welfare and educational systems, through redistribution of the country’s economy and scarce resources to reach the people on the ground (African National Congress 1994b:7-8).

The Gauteng Province, of which the Vosloorus Township is part has been greatly affected by urbanisation, immigration and the problem of squatters. This places a heavy burden on the provincial and local government's economic and social resources with the resultant desperate housing situation, overcrowding, ignorance, illiteracy, unhygienic living conditions, unemployment, poverty, violence and crime. Recent housing delivery figures released by the national Minister of Housing indicated that Gauteng was in the lead in the delivery of houses. However, Gauteng has an estimated shortage of about 500 000 houses, which is a third of the national housing shortage. It is also estimated that Gauteng has seven million people and that its population grows at a rate of 1,29% per annum, creating vast pressure on the province to deliver houses. Gauteng's backlog is also caused by the immigration of about 20 000 people every month from other provinces and the neighbouring countries. There are about 1,3 million houses and about 500 000 informal settlements in Gauteng. Most of these informal settlements lack basic facilities such as water, sewerage and electricity. It is for this reason that the Department of Housing has embarked on a programme called the "upgrading of informal settlements" to alleviate poverty in informal settlements (Department of Housing and Land Affairs 1997:1).
2.3.3 Environmental factors and malnutrition

2.3.3.1 The interaction of malnutrition and diseases

Malnutrition and the diseases associated with inadequate nutrition, overcrowding and a lack of sanitation are the major causes of ill-health amongst children. The incidence of acute malnutrition and especially deaths associated with it is higher amongst children aged between six months and three years. This is also the age when diseases are most frequent, particularly diarrhoea and parasitic infections due to factors relating to hygiene, such as potable water and sewerage. Thus the poor nutritional status observed in some children cannot be ascribed solely to inadequate diet. Malnutrition at mild and moderate levels and infectious diseases form a synergistic interaction. Diarrhoea, in particular, has been shown to cause malnutrition by suppressing appetite and interfering with nutrient metabolism and absorption. In turn, malnutrition may increase the risk of infection or the severity and duration once it has begun (Bloom 1998:chapter 6-10; Graham 1993:226; Le Roux 1992:85; Musgrove 1989:17; Pryer 1990:11). According to Dunjwa (1990:11), PEM and some specific nutrient deficiency diseases block the immunologic response to vaccines, especially T Cell-dependent antigens. Thus many infectious diseases run a more severe course in nutritionally deprived children. According to the researcher, most of the aspects listed above, are common in the Vosloorus Township.

2.3.3.2 Hygiene standards and malnutrition

According to Fair (1996:7), clean water, adequate sanitation, hygiene and health are links in the same chain. Water supply, sanitation and solid waste are the most important of all environmental problems to people, especially in the developing countries or urban areas with squatting conditions. Water-borne diseases arising from contaminated water are typhoid, cholera and some infections responsible for children’s diarrhoea in poor communities and contributing to infant mortality. K'Okul (1991:93) in a study on poverty, disease and malnutrition in Samia (Kenya), found that hygiene standards for feeding children were poor. Children were occasionally fed using dirty crockery and cutlery. Water shortages at the
household level was the primary reason. Similarly, Tolboom (1986:27) in Lesotho, in trying to establish the role of environmental factors in malnutrition, found that the absence of a protected source of drinking water did have a negative influence on survival in kwashiorkor. Pryer (1990:37) shares the same sentiments when she states that inadequate supplies of safe drinking water, lack of refuse disposal and of adequate sanitary facilities led to high risk of diarrhoeal diseases and gastro-intestinal disorders in cities in developing countries.

In the experience of the researcher, Vosloorus Township is also affected by the problems of land invasion and squatting whereby people simply erect shacks on any open land without basic services. In some instances, a number of households share one communal tap and in others, people have to travel between one and two kilometres to get water. In both instances, water is kept in buckets and containers and it is the way this water is stored and waste is disposed of that is unhygienic and provides a breeding place for flies. This, plus the lack of electricity to boil the water before use, could lead to infectious and gastro-intestinal diseases (in children fed from infected water) and malnutrition.

2.4 FACTORS THAT PREVENT THE SUCCESSFUL IMPLEMENTATION OF THE PEM PROGRAMME

This section discusses the PEM Programme in full as well as findings on other food supplementation programmes. Factors related to the mother of the toddler on the PEM Programme, her knowledge of the PEM Programme and her demographic background, the manner in which the PEM Programme is implemented and the impact this has on the success or failure of the PEM Programme are discussed.

2.4.1 Protein-Energy Malnutrition (PEM) Programme

In 1991, the then Department of National Health and Population Development, now known as the Department of Health, embarked on a nutrition intervention scheme called the PEM Programme, in an effort to combat and treat PEM. The Department of Health each year, makes funds available to local authorities as a 100,0% subsidy for the cost of the
supplementary foods. The local authorities through the child health clinics then supply children under the age of six years suffering from PEM with food supplementation, free of charge. The Department of Health through Circular 22/1991, provided guidelines on the diagnosis and classification of PEM into mild, moderate and severe PEM based on the NCHS Growth Curves (see Annexure B).

Case finding is made by means of the anthropometric measure of weight for age percentage according to sex during growth monitoring at child health clinics. Drotar (Reifsnider 1996:94) contends that there is consensus among researchers that weight for age should be the "initial descriptive criterion of growth failure". Once children have been identified as suffering from PEM, they are immediately placed on the PEM Programme by which they are supplied with food supplements monthly for three months and their weight is monitored fortnightly. Food supplementation is discontinued after three months of consistent weight gain. Should the child not gain weight as expected after three months, food supplementation is extended for another three months and the child is investigated for tuberculosis as well. The problem in the Vosloorus Township is that children on the PEM Programme do not gain weight consistently and remain on the scheme for a longer period than the prescribed three months.

2.4.2 Background of the mothers of toddlers on the PEM Programme

2.4.2.1 The mothers' knowledge and malnutrition

Whilst acknowledging that malnutrition is caused by poverty, Pryer (1990:30) also speculates that the mother's ignorance renders her unable to make the best use of the foods at her disposal. But Margo (Richter & Griesel 1986a:8) argues that some South African studies of malnutrition in rural areas have failed to find any relationship between maternal educational levels and the nutritional status of the children. However, it is not likely that the mother's education is directly related to child nutrition and care, except by influencing the socio-economic standard of the child's environment. This can be explained by the mother's preference of food ordering being oriented towards child nutrition and her knowledge of the

Cele (1991:15) states that “illiterate parents depended upon verbal instructions by the nurse, which may easily be forgotten”. According to the researcher’s own experience, this situation is prevalent at child health clinics in the Vosloorus Township. Regularly nurses give nutrition education talks to groups or individual mothers, but most often the mothers do not recall most of the information given. In some of the worst instances, mothers do not remember some of the most important dates, for example, the dates of birth of their children, and of illnesses and admission to hospital, which makes history taking difficult and inaccurate. It is probably for these reasons, that the WHO recommends that at least 70,0% of men and women should be able to read and write for proper health care and responsibility to their families (Cele 1991:15).

Pryer (1990:71) identifies a close association between the mother’s ignorance and malnutrition in a study conducted in the Dominican Republic for malnourished children and their mothers. The study found that the feeding centres established as part of the nutrition intervention programmes were not successful. The food that was meant to be a supplement by those who used it was regarded as a substitute and was eaten as the main meal. Growth monitoring over two years showed that malnutrition persisted. A similar study conducted by Kuhn (1991:92) in a rural African area showed that the malnutrition clinic was underutilised and was stigmatised. Mothers were embarrassed and reluctant to take their children to the clinic for fear of the community’s reaction that they made themselves beggars and that, in fact, they had failed in the care of their children.

2.4.2.2 Family size and malnutrition

K’Okul (1991:135), Kuhn (1991:91), Musgrove (1989:16) and Sahn (1990:23) are of the opinion that children of larger households are more vulnerable to malnutrition because of the pressure exerted on the dietary pot and the possibility of not being able to feed them all
adequately.

Burgess et al (1988:28) and Levinson (1991:10) discovered why food intervention programmes failed with some families. The reasons for the failure was the “spin off effect whereby other members of the family benefited and where the ration size was increased, some portion of the food was often sold”. This is typical of situations where there is no food at home for the other members of the family to eat. It was for this reason that the Department of Health changed the food intervention scheme from food parcels to commercial milk formula. The researcher, through contact with mothers at the child health clinics, found that the same problem exists at the Vosloorus child health clinics whereby some of the mothers, who were given food supplementation supposed to last for a month, often came back after a week or two claiming that the children had nothing to eat. Poverty and hunger knows no limits. It drives people to steal or sell anything that they can in exchange for other commodities.

Horton (Sahn 1990:3) is of the opinion that the child’s birth order had an effect on the nutritional outcome, that is, younger siblings are nutritionally disadvantaged when measured in terms of long-term malnutrition. However, Sahn (1990:3) argues that older siblings (six years and above) do not directly compete with a preschool child for nurturing time and are able to provide some child care assistance, thereby improving the nutritional status of the young child. Both statements are applicable in the Vosloorus Township. Some of the households still follow the old traditional practice of sharing food in one common plate amongst a number of individuals. This has a detrimental effect on younger children because they cannot compete with their older siblings in eating fast or taking bigger amounts of food. Burgess et al (1988:29) assert that “the child is usually the last in line and receives what remains”. However, in some households, older siblings are protective of their younger brothers/sisters both in caring for and feeding them and, occasionally, even making sacrifices. In addition, the new urban family is further identified as a family at special risk as the transition from an extended to a nuclear family suddenly cuts a woman off from the support and help in bringing up the children she is used to from family members living outside the immediate family (Bloom 1988:chapter 6-3; Burgess et al 1988:31; Dunjwa,
2.4.2.3 Weaning methods and malnutrition

In a study of PEM patients admitted to the children's ward of Umtata Hospital, Dunjwa (1990:11) found that the highest prevalence of acute malnutrition occurred during the weaning period between 6 and 23 months and if breastfeeding is the sole source of nutrition for the child, then it is obvious that the child will be malnourished because the amount and nutrients needed to sustain growth are lacking. Similarly, Griesel and Richter (1987:12) support this theory and also observe that urban Black infants grow well until the usual age at which breast milk is reduced, that is, six months, but by the time they were 12 months, their growth has deteriorated.

Accordingly, in a study on the association of prolonged breastfeeding and the risk of malnutrition in young children in Burkina Faso, Cousens, Nacro, Curtis, Kanki, Tall, Traore, Diallo and Mertens (1993:717) found that the combination of prolonged breastfeeding and supplementation with solid foods was associated with a 70.0% reduction in the rate of clinical malnutrition. Simply stated, this meant that the relative importance of breast milk to a child's diet clearly depended to some extent on what other sources of nutrition were available to the child.

Recent anthropological literature, which examined socio-cultural factors associated with child malnutrition, found that practices such as traditional weaning diet and the custom of separating the child from the mother during weaning, predisposed children to malnutrition and were the cause of high infant mortality and psychological disturbances due to nutritional deprivation and maternal separation (Cele 1991:14; Graham 1993:19; Griesel & Richter 1987:11; Reifsnider 1996:95; Sahn 1990:8). Similarly, studies conducted in Africa and South Africa indicated that the abrupt weaning that occurred when the mother discovered that she was pregnant was one reason why the weaning children were at risk of malnutrition. In such cases, not only was the child faced with the sudden transition to a bulky starch diet, but also with a change in the manner of feeding. The change meant that the child had to feed
himself/herself and was forced to become less dependent and more independent. These changes, they said, can produce more stress on the already stressful severage situation, thus potentially increasing the chances of malnutrition (Cominsky, Mhloyi & Ewbank 1993:942-943; Howard 1994:240; K'Okul 1991:94; Richter & Griesel 1986b:8).

2.4.2.4 Introduction of solids and malnutrition

It has been well established that breast milk is the best for infants and that exclusive breastfeeding can sustain the nutrition of the infant for the first four to six months (Pryer 1990:18).

Recent literature recommends the introduction of solids between four and six months of age to protect the immature gut and the trend in infants feeding is to gradually introduce solids and new tastes while still on the breast and slowly build up until the child is on full family diet (Cele 1991:11; Dunjwa 1990:10-11; Pryer 1990:19; Stanhope & Lancaster 1996:530).

Cele (1991:12) also suggests that cereals should be introduced first and to be followed by vegetables, one at a time, for proper adjustment of the child to the new food.

There seems to be concern amongst researchers about the age of introducing solids/supplements into the child’s diet in that some mothers introduce them too late and others, too early (Cominsky et al 1993:946). However, this is not the case in the Vosloorus Township where the problem is the mothers’ ignorance of the type of solids, the amounts and the nutrient needs of the children. Most often the solids/supplements have been found to be inadequate and overdiluted. In a study on “social and dietary practices of Soweto families who protect against overt malnutrition”, (Bloom (1988:chapter 6-9) found that some of the dietary practices of urbanisation in the Black population have been identified as a dramatic decrease in breastfeeding, infants being weaned to commercial milk formulae at a much earlier age and the weaning foods often consisting of improperly diluted formulae or an inadequate commercial mixture. Similarly, Pryer (1990:34) and Tolboom (1986:23) speculate that malnutrition in children is because of the danger of contamination of weaning foods and the
overdilution of expensive breast milk substitutes. This is supported by Schweiger (Pryer 1990:34), who found that a third of malnourished infants at a child health clinic in Bangladesh, had been fed solely on powdered barley water which had been grossly diluted and Cominsky et al (1993:941), who found that the first supplementary feed given to infants in a rural area of Zimbabwe was porridge or gruel most commonly made from maize meal.

2.5 CONCLUSION

The research findings from the literature review have assisted in promoting a better understanding of the complex and multifaceted factors that interact in causing malnutrition. Of significance, however, is the role of the political system in shaping the socio-economic conditions and, consequently, the lives of the different population groups in the country.

From the literature review it is apparent that Gauteng Province has major problems with regard to urbanisation and immigration with all its social and economic evils. Vosloorus Township being part of Gauteng is equally affected with unemployment, poverty, squatting, overcrowding, malnutrition, violence and crime being the order of the day.
CHAPTER 3

Research methodology

3.1 INTRODUCTION

This chapter discusses the research methodology used in the study. The overall purpose of the study was to analyse the reasons why the PEM Programme was not successful in combating malnutrition amongst toddlers in the Vosloorus Township, by obtaining answers to the following research questions:

- What factors give rise to malnutrition amongst toddlers in the Vosloorus Township?
- Why do toddlers on the PEM Programme in the Vosloorus Township fail to achieve their expected target weight?
3.2 RESEARCH METHODOLOGY

Using the research questions as the conceptual framework for the study, a quantitative, non-experimental exploratory descriptive survey method was used to collect data on toddler malnutrition and the PEM Programme in the Vosloorus Township.

According to Polit and Hungler (1997:457), an exploratory research is a study designed to explore the dimensions of a phenomenon. It is especially appropriate when a new area or topic is investigated. An exploratory study was considered appropriate for this study as very little is known about the topic. The literature search revealed that there was limited research on malnutrition and no reported research on the PEM Programme in South Africa.

An exploratory descriptive research design was selected for this study to observe, describe and document aspects that gave rise to toddler malnutrition and the reasons why toddlers on the PEM Programme fail to achieve their target weight in the Vosloorus Township.

The survey method was considered appropriate to collect data for this study because the researcher wanted to determine the background of the mothers of toddlers, their beliefs about feeding and weaning practices in particular, their food preferences and their opinion of the PEM Programme and the services offered at the child health clinics in the Vosloorus Township. According to Polit and Hungler (1997:469), a survey method is appropriate when information of this kind can only be obtained by means of direct questioning of a sample of respondents.

3.3 POPULATION AND SAMPLING METHOD

- Sampling method

Convenience sampling consists of using the most readily available or most convenient group of people for the sample (Polit & Hungler 1997:244). A convenience sample was used to select 50 mothers from the three child health clinics in the Vosloorus Township by the
researcher. The criterion used for selecting the sample was that the mothers should have toddlers who were on the PEM Programme for three months or longer without consistent weight gain. The reason as to why a convenience sampling method was selected as only a relatively small number of mothers met the criterion set for the sample population. The sample was therefore selected on the basis of availability. According to a number of researchers, the risks of bias is minimal if the sample is fairly homogenous with respect to the attributes under investigation (Brink & Wood 1988:167; LoBiondo-Wood & Haber 1990:272; Polit & Hungler 1987:209; Woods & Cantanzaro 1988:251).

Sample size

The sample size was discussed with a statistician from the Department of Statistics at Unisa, who initially recommended a sample size of 60 with a percentage taken from each clinic. There were problems in obtaining a sample size of 60 as attendances at the PEM clinics were becoming smaller. The final sample was 50, even after the period for collecting data was extended by a further two weeks. This problem was discussed with the statistician and the sample size of 50 was acceptable.

3.4 DATA COLLECTION

3.4.1 Research instrument

Structured interviews were conducted by the researcher with 50 mothers at the three child health clinics in the Vosloorus Township over a period of two months. It took an average of 15 minutes to complete each questionnaire.

Structured interviews as a method for collecting data was considered appropriate for this study because the researcher knew in advance exactly what information was required and appropriate questions could therefore be framed to obtain the needed information. Closed questions were asked to obtain factual information. The alternatives ranged from a simple “yes” or “no” response such as Item 1.6, to a combination of fixed alternatives designated
by the researcher, such as Item 1.2. Open-ended questions were also asked, which allowed respondents to answer questions in their own words and express their opinion, such as Items 1.6.1, 2.24.1 and 3.9 (Brink & Wood 1988:146; Polit & Hungler 1997:256-257).

By conducting interviews, it was possible to clarify any concepts that were not clear to the respondents and thereby avoid misunderstanding and misinterpretation of questions. The researcher also maximised the response rate to 100.0% (Brink & Wood 1988:146; Wilson 1989:366).

3.4.2 Development of the research instrument

An open-ended and closed-ended computer coded questionnaire was designed to be used by the researcher in the structured interviews. The questionnaire was designed and developed after an in-depth literature review and discussions with experts in the field, namely the supervisors of the study, the statistician and nursing colleagues.

Format of the questionnaire

Using the research questions as the conceptual framework, the questionnaire was designed to elicit answers to the research questions.

- In Section 1 of the questionnaire, the questions asked related to the mothers of toddlers (Items 1.1 to 1.22).

- In Section 2 questions related to toddlers (Items 2.1 to 2.25)

- In Section 3 questions related to the knowledge the mothers of toddlers had of the PEM Programme (Items 3.1 to 3.9).

- In Section 4 questions related to the extent to which the mothers of toddlers were satisfied with the clinic services, the nurses' attitudes and the PEM Programme.
Table 3.1: Format of the questionnaire

<table>
<thead>
<tr>
<th>CONTENT</th>
<th>ITEMS ON QUESTIONNAIRE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demographic details of the mothers of toddlers</td>
<td>1.1 to 1.22</td>
</tr>
<tr>
<td>Details of toddlers on the PEM Programme</td>
<td>2.1 to 2.25</td>
</tr>
<tr>
<td>Knowledge of the PEM Programme by the mothers of toddlers</td>
<td>3.1 to 3.9</td>
</tr>
<tr>
<td>Mothers' satisfaction scale with the services provided and the PEM Programme</td>
<td>4.1 to 4.3</td>
</tr>
</tbody>
</table>

In Section 3 of the questionnaire, several different questions relating to one variable were included as cross-checks (eg, Items 3.1, 3.1.1 and 3.6) to see if the respondents answered these in a consistent way. Such questions also allowed for the appraisal of the validity of the questionnaire and of the accuracy of the respondent's information. The questionnaire was coded for easy analysis (see Annexure C).

3.4.3 Pre-testing the research instrument

A pretest is a trial run to determine as far as possible whether the instrument is clearly worded and free from major biases and solicits the type of information envisioned (Polit & Hungler 1997:257).

Pretesting of the instrument was done with a sample of five mothers at the child health clinic in the Vosloorus Township, who were not included in the main study, but whose children met the criterion set for the main study.

Structured interviews were conducted by the researcher in one day. The average time taken to complete each questionnaire was twenty minutes. Questions that were ambiguous, were reconstructed and changed to be more specific. The final questionnaire was discussed with the researcher's supervisors and the statistician, and was acceptable in terms of face and content validity.
3.4.3.1 Validity of the research instrument

Validity refers to the degree to which an instrument measures what it is supposed to measure (Polit & Hungler 1997:299).

Face validity is a very rudimentary type of validity that verifies basically that the instrument looks like it measures or gives the appearance of measuring the concept (LoBiondo-Wood & Harber 1990:251). Face validity was tested by consulting experts in the field, namely, the researcher’s supervisor, the statistician and nursing colleagues, who were asked to check the meaning and appropriateness (relevance) of the questions asked.

Content validity is concerned with the sampling adequacy of the content area being measured and it is most relevant to individuals designing a test to measure knowledge in a specific content area (Polit & Hungler 1987:324). Content validity was tested by consulting five community health nurses in the child health clinics in the Vosloorus Township to verify the adequacy, relevancy and representativeness of the questionnaire and to ensure that all the known facts about the topic were covered.

3.4.3.2 Reliability

Reliability of an instrument refers to the degree of consistency with which the instrument measures the attribute. The reliability of a quantitative measure is a major criterion for assessing its quality (Polit & Hungler 1997:295).

Reliability of the instrument was ensured by the following:

- The questionnaire was clearly worded in simple English.
- Questions were asked in a language that the respondents understood.
• A pretest was done and ambiguous questions or questions that were not clearly stated were reconstructed for easy comprehension and correct interpretation.

• A correlation coefficient test such as the alpha cronbach correlation coefficient test was requested. After consultation with the statistician it was found that due to the fact that the sample size was too small, this test could not be used.

3.4.4 Permission for the study

Permission was obtained from the Transitional Local Council of Boksburg (see Annexure D) to conduct the survey in the three child health clinics in Boksburg.

3.4.5 Problems encountered with data collection

Data collection was delayed for three months due to the breakdown in the supply of the PEM supplementary feed following a labour unrest (strike) at the manufacturing company (Nestle SA). The researcher had no option but to wait for the distribution and supply of PEM supplementary feed to be normal again before she could begin her study.

3.4.6 Ethical considerations

Anonymity and confidentiality were assured by limiting access to the questionnaires only to the researcher, the statistician and the supervisors of the study. The researcher informed the respondents about the nature and purpose of the research. Voluntary participation in the study was emphasised. Questions were encouraged and no information was withheld from the respondents to ensure that they would give informed consent. The respondents were also assured that no information would be divulged to anyone not involved with the research and that their names would not appear anywhere in the questionnaire (Brink & Wood 1988:187; Wilson 1989:69).

All mothers agreed to participate in the research.
3.5 ANALYSIS OF DATA

Data analysis refers to the systematic organization and synthesis of research data (Polit & Hungler 1997:455).

The data was analysed with the assistance of the statistician and the use of the Statistical Analysis System (SAS) software package. The questionnaire was designed with a coding system that facilitated the analysis of the data.

The data is presented and discussed with the aid of tables and graphs in chapter 4.

3.6 CONCLUSION

This chapter discussed the research methodology.
CHAPTER 4

Analysis and presentation of data

4.1 INTRODUCTION

The Statistical Analysis System (SAS) software package was used to analyse the data presented in this chapter. The data was obtained from questionnaires used during the structured interviews with 50 mothers of toddlers on the PEM Programme in the Vosloorus Township.

The data is presented according to the conceptual framework based on the research questions as follows:

- What factors give rise to malnutrition amongst toddlers in the Vosloorus Township?
- Why do toddlers on the PEM Programme in the Vosloorus Township fail to achieve their expected target weight?
4.2 SECTION 1: DEMOGRAPHIC DETAILS OF THE MOTHERS OF TODDLERS

☐ Item 1.1: Ages of the mothers of toddlers

Figure 4.1 shows that 27 (54.0%) of the respondents were in the age group 21 to 30 years and 14 (28.0%) were teenage mothers, with the youngest being 15 years old. It was interesting to note that only nine (18.0%) were in the age group 31 to 43 years. These findings are significant in terms of the poor nutritional status of the toddlers and the young age of nearly 50.0% of the respondents.
Figure 4.2 shows that only 14 (28,0%) of the respondents were married. The majority 34 (68,0%) were single mothers with only one (2,0%) respondent divorced and one (2,0%) widowed. According to Tolboom (1986:27), single mothers posed a potential risk factor as caregivers and could contribute to the development of PEM by the toddlers.
Table 4.1: Total number of people in the households of toddlers (n = 50)

<table>
<thead>
<tr>
<th>TOTAL NUMBER OF PEOPLE IN EACH HOUSEHOLD</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>4</td>
<td>8.0</td>
</tr>
<tr>
<td>3</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>4</td>
<td>5</td>
<td>10.0</td>
</tr>
<tr>
<td>5</td>
<td>7</td>
<td>14.0</td>
</tr>
<tr>
<td>6</td>
<td>9</td>
<td>18.0</td>
</tr>
<tr>
<td>7</td>
<td>6</td>
<td>12.0</td>
</tr>
<tr>
<td>8</td>
<td>4</td>
<td>8.0</td>
</tr>
<tr>
<td>9</td>
<td>7</td>
<td>14.0</td>
</tr>
<tr>
<td>12</td>
<td>2</td>
<td>4.0</td>
</tr>
<tr>
<td><strong>TOTAL: ................................</strong></td>
<td><strong>50</strong></td>
<td><strong>100.0</strong></td>
</tr>
</tbody>
</table>

Table 4.1 shows that the total number of people per household ranged between 2 and 12, with an average of six people per household. These findings seem to support previous research done on malnutrition which found that children of larger households were more vulnerable to malnutrition because of the pressure exerted on the dietary pot and the possibility of not being able to feed them all adequately (K’Okul 1991:135; Kuhn 1991:91; Musgrove 1989:16; Sahn 1990:2-3).
Figure 4.3 shows that 33 (66.0%) of the respondents had only one toddler in the household, 16 (32.0%) had two toddlers in the household and only one (2.0%) had three toddlers in the household. It would appear from these findings that the number of toddlers per household did not have a significant role to play in the poor nutritional status of the toddlers.
Item 1.5: Age difference of the two youngest children (n = 50)

Twenty-nine (58.0%) of the respondents' toddlers had no siblings, they were the firstborn (first child). Of the remaining 21 (42.0%) respondents toddlers, only four (8.0%) had an age difference of 11 months and less, with 17 (34.0%) respondents toddlers being well spaced with an age difference ranging between 13 months and 8 1/4 years between each child. It would appear from these findings that the respondents had some knowledge of family planning. This is significant in terms of the poor nutritional status of the toddlers, which should not be the case.

Item 1.6: Accommodation of the mothers of toddlers (N = 49)

Only 49 respondents answered this question and it is presumed that the one respondent who did not answer this question does not have her own accommodation. Seventeen (34.0%) respondents indicated that they had their own accommodation, whilst 32 (64.0%) indicated that they had no accommodation of their own. These findings are significant in that, in the Vosloorus Township in the past, residents used to rent formal houses from the Council, which is now no longer the case and hence the present situation of shacks or informal housing with all its health and social problems.
Figure 4.4
Type of accommodation of the mothers of toddlers (n = 50)

Figure 4.4 shows that 40 (80.0%) of the respondents indicated that they lived in brick houses and nine (18.0%) indicated that they lived in shacks and one (2.0%) in a flat. The 40 (80.0%) respondents who lived in brick houses included those mothers who shared and rented accommodation and is consistent with the findings in Item 1.1, which showed that more than 80% of the respondents were in the age group of 15 to 30 years. That these respondents are still staying at their parents' houses or with relatives is common amongst Blacks and in the Vosloorus Township.

Item 1.7: Number of bedrooms in the homes of toddlers (n = 50)

Twelve (24.0%) respondents indicated that they have one bedroom at home, 30 (60.0%) indicated that they have two bedrooms, six (12.0%) indicated that they have three bedrooms and two (4.0%) indicated that they had four bedrooms. The fact that 30 (60.0%) of the
respondents lived in two bedroom houses is an expected finding as the majority of houses in the Vosloorus Township have two bedroom houses.

- **Item 1.8: Number of separate kitchens in the homes of toddlers (n = 50)**

Thirty-nine (78,0%) of the respondents indicated that they had a separate kitchen and 11 (22,0%) indicated that they had no kitchen. The latter finding is consistent with shacks where there is only one room, which serves both as a kitchen and living room during the day and a bedroom at night.

- **Item 1.9: Living arrangements of mothers without their own accommodation**

![Pie chart showing living arrangements of mothers without their own accommodation](image)

*Figure 4.5*  
Living arrangements of mothers without their own accommodation (N = 33)
Figure 4.5 shows that of the 33 (66,0%) respondents without their own accommodation, 25 (76,0%) lived with family members who formed their support system, six (18,0%) lived with friends and two (6,0%) lived in rented accommodation. It seems that these findings are consistent with previous findings in Item 1.2, which showed that 36 (72,0%) of the respondents were single parents. These findings are significant for the Vosloorus Township in that single persons, including divorced persons, live together with their family members who become their support system indefinitely or until they get married and move out of the family home.

☐ Items 1.10 and 1.10.1: Source of water and storage of water at the homes of toddlers (n = 50)

Thirty-seven (74,0%) respondents indicated that they got water from household taps; 12 (24,0%) indicated that they got water from communal taps and one (2,0%) respondent did not indicate her source of water. Of the 13 (26,0%) respondents without household taps, 11 (84,6%) stored their water in buckets with lids and two (15,4%) did not cover their water. It would appear from these findings that the number of households with a potential risk of water contamination and the resultant problem of water-borne diseases, was small. These findings are significant in terms of the poor nutritional status of the toddlers, which should under these conditions, not be the case.
Item 1.11: Type of toilets available at the homes of toddlers

Figure 4.6

Type of toilets available at the homes of toddlers (n = 50)

Figure 4.6 shows that 40 (80,0%) of the respondents had water-borne sewerage, seven (14,0%) had chemical toilets, two (4,0%) used pit latrines and only one (2,0%) had no toilet facilities and probably went to the veld for toilet purposes. It would appear from these findings that the risk of the children suffering from infectious diseases and diarrhoeal diseases and developing malnutrition due to lack of sanitary facilities, was minimal.

Items 1.12 and 1.13: Toilet habits of toddlers (n = 50)

Eleven (22,0%) respondents indicated that their toddlers used the toilets available at home whilst 39 (78,0%) indicated that their toddlers still wore nappies and were in the process of being pottie trained. It would appear from these findings that the toilet habits of toddlers did not pose a risk factor in terms of hygienic standards.
Item 1.14: Source of energy in the homes of toddlers (n = 50)

Thirty-six (72.0%) respondents indicated that they had electricity at home, one (2.0%) used coal and ten (20.0%) used paraffin stoves. However, three (6.0%) of the respondents did not indicate the type of energy they use at home. These findings are satisfactory as the majority of the respondents had access to boiling water necessary for the correct preparation of the PEM supplementary feed and for the prevention of diseases (e.g., diarrhoea) that could potentiate the development of malnutrition in toddlers.

Item 1.15: Employment status of the mothers of toddlers

Figure 4.7: Employment status of the mothers of toddlers (n = 50)

Figure 4.7 shows that only six (12.0%) of the respondents were currently employed and 44 (88.0%) were unemployed. This is a common and important finding amongst Black women in South Africa and is consistent with findings of other research done in South Africa where
it was found that unemployment has been the most prevalent amongst women, especially young people under the age of 24 (Department of Welfare 1997b:9; Dunjwa 1990:5). The findings of this study would have been more significant if the careers of the working respondents were known.

Item 1.15.1: Average household income per month

Table 4.2: Average household income per month (n = 50)

<table>
<thead>
<tr>
<th>INCOME RANDS PER MONTH</th>
<th>NUMBER OF RESPONDENTS</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-100</td>
<td>3</td>
<td>6,0</td>
</tr>
<tr>
<td>200-300</td>
<td>10</td>
<td>20,0</td>
</tr>
<tr>
<td>300-500</td>
<td>11</td>
<td>22,0</td>
</tr>
<tr>
<td>600-900</td>
<td>6</td>
<td>12,0</td>
</tr>
<tr>
<td>1000+</td>
<td>20</td>
<td>40,0</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>50</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Table 4.2 shows that 20 (40,0%) of the respondents had an average income of R1000 and above and six (12,0%) had an income of between R600 to R900 per month. However, there is a sharp contrast between this finding and the 24 (48,0%) respondents who had an average income of between R0 and R500 per month. These findings support previous research on malnutrition which identified low income as the main cause of malnutrition (Griesel & Richter 1987:12; Kassouf & Senauer 1996:832; K'Okul 1991:113; Levinson 1991:7; Musgrove 1989:124 & Richter & Griesel 1986a:3). Furthermore, Van Rensburg et al (1992:199) are of the opinion that income is a co-determinant of people's socio-economic status, their illness and health care.
Table 4.3: Other sources of income of mothers of toddlers (n = 50)

<table>
<thead>
<tr>
<th>SOURCE OF INCOME</th>
<th>NUMBER OF RESPONDENTS</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband</td>
<td>8</td>
<td>16,0</td>
</tr>
<tr>
<td>Parents</td>
<td>18</td>
<td>36,0</td>
</tr>
<tr>
<td>Relatives</td>
<td>9</td>
<td>18,0</td>
</tr>
<tr>
<td>Friends</td>
<td>10</td>
<td>20,0</td>
</tr>
<tr>
<td>Self</td>
<td>5</td>
<td>10,0</td>
</tr>
<tr>
<td><strong>TOTAL:</strong></td>
<td><strong>50</strong></td>
<td><strong>100,0</strong></td>
</tr>
</tbody>
</table>

Table 4.3 shows that only five (10,0%) of the respondents had their own source of income whilst eight (16,0%) of the respondents were supported by their husbands. It would appear from these findings that the rest of the respondents (74,0%) were dependent on parents 18 (36,0%), friends ten (20,0%) and relatives nine (18,0%). The potential risk of toddlers developing malnutrition in this case is significantly high, as according to Richter and Griesel (1986a:8, 11) and Sahn (1990:20), single and dependent mothers have no influence over the household budget and might have to take what they can get for their children when they are relying on the hand-outs of relatives and friends. These findings are not consistent with the finding in Item 1.5 where six (12,0%) of the respondents indicated that they were employed.

Item 1.16: Mothers of toddlers as sole breadwinner (n = 50)

Fifteen (30,0%) respondents indicated that they were the sole breadwinner whilst 35 (70,0%) indicated that they were not. These findings appear to be consistent with previous findings in Item 1.15.2 which showed that 37 (74,0%) of the respondents had no income of their own or of their husbands, but depended on friends, family and relatives. This finding is significant in terms of the poor nutritional status of toddlers. Even though in Item 1.15.2 only five (10,0%) respondents indicated that they were self-supporting, these findings show that 15
(30,0%) of the respondents indicated that they were sole breadwinners meaning that the other ten (20,0%) probably got their source of income from friends, family and relatives.

Item 1.17: Alcohol intake of the mothers of toddlers during pregnancy

Figure 4.8

Alcohol intake of the mothers of toddlers during pregnancy (n = 50)

Figure 4.8 shows that only four (8,0%) of the respondents took alcoholic beverages during pregnancy. It would appear from these findings that the majority 46 (92,0%) of the respondents did not take alcohol during pregnancy. This is the most satisfactory finding for the foetus in utero but appears not to have had a significant role in terms of the poor nutritional status of the toddlers.
Figure 4.9 shows that 47 (94.0%) of the respondent indicated that they did not smoke during pregnancy and only three (6.0%) smoked during pregnancy. This finding is most satisfactory for the foetus in utero but appears not to have had a significant role in terms of the poor nutritional status of the toddlers. These findings also failed to support Walker and Bach (1992:93) findings on malnutrition which showed that smoking during pregnancy can reduce the weight gain of an infant by a third.
Figure 4.10 shows that 46 (92.0%) of the respondents indicated that they did not have complications during pregnancy only four (8.0%) had complications during pregnancy. Complications such as hypertension in pregnancy could precipitate premature/induced labour or small for gestational age babies due to intra-uterine growth retardation. However, the number of mothers with complications during pregnancy was minimal and does not appear to be a significant contribution to the poor nutritional status of the toddler.
Item 1.20: Complications of the mothers of toddlers during labour

Figure 4.11 shows that 44 (88.0%) of the respondents indicated that they did not have complications during labour and only six (12.0%) had complications during labour. It has been well established that complications during labour could result in mental retardation and/or arrested development of a child. These findings however, do not appear to play a significant role in contributing to the poor nutritional status of the toddlers.

Item 1.21: Hereditary conditions in the family of toddlers (n = 50)

Four (8.0%) of the respondents indicated that asthma was a problem in the family and 46 (92.0%) indicated that they did not have any hereditary conditions in the family. Asthma was the only condition reported. Since, to the researcher’s best knowledge, there is no
known study that indicates a relationship between malnutrition and asthma, this finding appears to have played no significant role in the poor nutritional status of the toddlers.

Item 1.22: Educational standard of the mothers of toddlers

Table 4.4: Educational standard of the mothers of toddlers (n = 50)

<table>
<thead>
<tr>
<th>EDUCATIONAL STANDARD</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Standard 1 to 4</td>
<td>7</td>
<td>14,0</td>
</tr>
<tr>
<td>Standard 5 to 7</td>
<td>24</td>
<td>48,0</td>
</tr>
<tr>
<td>Standard 8 to 10</td>
<td>19</td>
<td>38,0</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>50</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Table 4.4 shows that all 50 (100,0%) respondents had received some schooling with Standard 6 as the average educational level. Seven (14,0%) had schooling up to Standard 4, 24 (48,0%) had schooling up to Standard 7 and 19 (38,0%) had schooling up to Standard 10. It would appear from these findings that the majority of the respondents were functioning at a low level of education. This finding is significant in terms of the poor nutritional status of the toddlers, as according to Cele (1991:15), Dunjwa (1990:7), Pryer (1990:30) and Van Rensburg et al (1992:114), low level of education tends to make the mothers more ignorant and uninformed about diseases and health care programmes and affects their ability to work and find employment.
4.3 SECTION 2: DETAILS OF TODDLERS ON THE PEM PROGRAMME

Item 2.1: Ages of the toddlers in months

Figure 4.12

Ages of the toddlers in months \( (n = 50) \)

Figure 4.12 shows that more than half of the toddlers 27 (54,0%) were in the age group 12 to 18 months with 19 (38,0%) in the age group 19 to 24 months and only four (8,0%) in the age group 25 months or more. These findings appear to be consistent with previous research on malnutrition, which showed that malnutrition occurred during the weaning period of 6 to 23 months and if breastfeeding is the sole source of nutrition, the child will be malnourished because of inadequate nutrients to sustain growth (Dunjwa 1990:11).
Item 2.2: Type of feed of toddlers

Two (2) of the respondents did not answer this question.

Figure 4.13

Type of feed of toddlers \( (N = 48) \)

Figure 4.13 shows that 20 (41.7%) of the toddlers were on solids/full family diet, 11 (22.9%) were on bottle feeds, nine (18.8%) were on both breast and bottle feed and only eight (16.6%) were still breastfeeding. These findings appear to have a significant role in the poor nutritional status of the toddlers as Cousens et al (1993:717), in a study associated with prolonged breastfeeding and the risk of malnutrition, found that the combination of prolonged breastfeeding and supplementation with solid foods was associated with a 70.0% reduction in the rate of clinical malnutrition.
Figure 4.14 shows that more than half of the toddlers 29 (58.0%) had solids introduced into their diet between two and three months, 19 (38.0%) between four and six months, one (2.0%) at seven months and above and only one (2.0%) toddler had solids in the first month of life. Recent literature recommends the introduction of solids between four to six months of age as the gut of the infant is considered too immature for solids (Cele 1991:11; Dunjwa 1990:10; Stanhope & Lancaster 1996:530). However, in research on malnutrition in Southern Africa, Hoffman (Griesel & Richter 1987:11) found that 30.7% of the mothers were giving mixed feeding at six weeks and from the researcher’s own experience from the child health clinics in the Vosloorus Township, infants were also found to be on mixed feeding as early as four weeks old without any observed or reported ill-effects.
Figure 4.15 shows that 12 (24.0%) of the toddlers were started on solids with cereal whilst the majority 38 (76.0%) were started with soft porridge (*mdoko* or *lesheleshele*). *Mdoko* is a traditional breakfast porridge for Blacks, prepared with maize meal and boiling water. The porridge is supposed to be served with sugar and milk, but it is not uncommon in the Vosloorus Township to serve it without milk as this is a scarce commodity for most households in the Vosloorus Township and in most urban Black Townships. Cominsky et al (1993:941), Griesel and Richter (1987:11) and Tolboom (1986:23) respectively in their studies also found the prevalence of watery porridge (*lesheleshele*), powdered barley water (which had been grossly diluted and porridge) or gruel most commonly made from maize being used as introductory (supplementary) solids.
Item 2.5: Methods used to feed solids to toddlers (n = 50)

Forty-seven (94,0%) of the respondents indicated that their toddlers were spoon-fed and three (6,0%) indicated that the cereal was added to the toddler’s bottle. It would appear from these findings that the majority of the mothers followed the health education and advice given to them at child health clinics not to give cereal in the bottle as this could interfere with the correct preparation of the formula or the adequacy of the commercial mixture.

Item 2.6: Frequency of solids given to toddlers per day (N = 45)

Ten (22,2%) of the respondents indicated that their toddlers were given solids twice per day; 35 (77,8%) indicated that their toddlers were given solids three times per day and five (10,0%) did not indicate how many times their toddlers were given solids. It would appear from these findings that the frequency of solids was an individual decision and on average, the frequency of giving solids two to three times per day was preferred by most mothers. In the traditional Black culture, the number of feeds given per day is determined by toddler demand. This culture of feeding on demand does not always meet the nutritional needs of the child as the number of feeds may be insufficient for the toddler’s body needs (Cele 1991:13).
Item 2.7: Breastfeeding status of toddlers

Figure 4.16 shows that 32 (64.0%) of the toddlers had been weaned off the breast and only 18 (36.0%) were still breastfeeding. In a study on children suffering from malnutrition, Cousens et al (1993:717) found that the combination of prolonged breastfeeding and supplementation with solid foods was associated with a 70.0% reduction in the rate of clinical malnutrition. These findings are significant as the toddlers were at risk of developing malnutrition (PEM), especially if the commercial milk formula or the weaning foods were inadequate.

Item 2.7.1: Age of weaning of toddlers

One respondent did not recall the age of weaning her toddler and 18 did not answer this question, as it did not apply to them because they were still breastfeeding.
Table 4.5: Age of weaning of toddlers (N = 31)

<table>
<thead>
<tr>
<th>TODDLERS AGE IN MONTHS</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 to 6</td>
<td>9</td>
<td>29,0</td>
</tr>
<tr>
<td>7 to 12</td>
<td>12</td>
<td>38,7</td>
</tr>
<tr>
<td>13 to 18</td>
<td>7</td>
<td>22,6</td>
</tr>
<tr>
<td>19 to 24</td>
<td>3</td>
<td>9,7</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>31</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Only mothers who had weaned their babies off the breast answered this question. Table 4.5 shows that the mean age for weaning of toddlers was 12 months. Nine (29,0%) toddlers were weaned off the breast between one and six months, seven (22,6%) between 13 and 18 months and three (9,7%) between 19 and 24 months. In a study on malnutrition Masanganise and Waterston (Griesel & Richter 1987:11) indicated that children were weaned off at varying ages depending on cultural beliefs and practices. Westcott and Stot (Griesel & Richter 1987: 11) found that the mean age for weaning amongst Transkeian children was 17 months. Late weaners are not uncommon amongst Blacks. These findings appear to be consistent with Dunjwa’s (1990:11) findings which indicated that malnutrition occurred during the weaning period of 6 to 23 months. Westphal (Griesel & Richter 1987:12) also found that Black infants grew well until the usual age of weaning, that is 6 to 12 months, and by the time they were 12 months, their growth had deteriorated noticeably.

Item 2.8: Weaning methods used by the mothers of toddlers (N = 31)

Eighteen (36,0%) respondents did not answer this question because it did not apply to them as they were still breastfeeding. One (2,0%) respondent could not recall the details of weaning her toddler.

Thirteen (41,9%) respondents indicated that their toddlers were weaned off the breast gradually and 18 (58,1%) indicated that their toddlers were weaned off abruptly. It would appear from these findings that more than 50,0% of the 31 toddlers who were weaned off the breast, were weaned off abruptly. These findings are significant in terms of the poor
nutritional status of the toddlers as previous research done on weaning practices, indicated that abrupt weaning with or without maternal separation, predisposed children to malnutrition and was also the cause of high infant mortality (Cele 1991:14; Graham 1993:19; Griesel & Richter 1987:11; Howard 1994:240; Reifsnider 1996:95; Sahn 1990:8).

Item 2.9: Abrupt weaning methods used by the mothers of toddlers

Only the 18 respondents who had weaned their toddlers abruptly from the breast, answered this question.

Table 4.6: Abrupt weaning methods used by the mothers of toddlers (N = 18)

<table>
<thead>
<tr>
<th>ABRUPT WEANING METHODS USED</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cayenne Pepper</td>
<td>5</td>
<td>27,8</td>
</tr>
<tr>
<td>Separation</td>
<td>9</td>
<td>50,0</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
<td>22,2</td>
</tr>
<tr>
<td>TOTAL:</td>
<td>18</td>
<td>100,0</td>
</tr>
</tbody>
</table>

Table 4.6 shows that nine (50,0%) of the respondents used the method of separation for abrupt weaning of toddlers, five (27,8%) used cayenne pepper and four (22,2%) used other methods such as aloes. These findings indicate that the most popular method used for abrupt weaning was separation of the child from the mother, this could have been due to hospitalisation, displacement due to the mother discovering that she was pregnant or deliberately sending the toddler away to live with grandparents, in an attempt to wean off the breast. Previous research on abrupt weaning, Cominsky (1993:842), Griesel and Richter (1987:11), Howard (1994:24) and K'Okul (1991:94) indicated that traditional practices and customs of maternal separation during weaning could lead to psychological stress and the development of malnutrition amongst the toddlers.
Figure 4.17 shows that 30 (60,0%) of the toddlers were being looked after by their mothers, eight (16,0%) by their grandparents, two (4,0%) by siblings, two (4,0%) by others such as neighbours and friends, and ten (20,0%) were cared for at crèches/childminders. These findings are significant in terms of the poor nutritional status of toddlers and the effective implementation of the PEM Programme, as according to Tolboom’s (1986:27) view, single parents and grandparents as care givers are a potential risk factor that could contribute to the development of malnutrition.
Item 2.11: Number of children cared for at the crèche/childminder (N = 10)

Only ten (20,0%) of the 50 respondents had their toddlers cared for at a crèche or by a childminder during the day. The number of toddlers ranged between 4 and 25. It should be noted that the figures given by the respondents were estimates as the respondents were not certain of the number of children who were cared for at the crèche. This finding is significant in terms of the poor nutritional status of the toddlers as previous findings in Item 1.22 showed that 31 (62,0%) of the respondents were functioning at a low level of education, which is a major factor in contributing to ignorance and lack of information on diseases and child care.

Item 2.11.1: Diet given to toddlers at the crèche/childminder (N = 10)

None of the ten (20,0%) respondents with toddlers cared for at a crèche or childminder knew the diet of their toddlers for the whole day whilst at the crèche. For breakfast, eight (80,0%) respondents indicated that soft porridge was given, seven (70,0%) were ignorant of what their toddlers were given for lunch and eight (80,0%) were ignorant in terms of the afternoon snack or beverages given. This finding is alarming in terms of the PEM Programme as well as the poor nutritional status of the toddlers. Previous research done on child malnutrition, indicated that the education of the mother enabled her to direct her food ordering preferences towards the child nutrition and knowledge of the child’s nutrient needs and the nutritional value of different foods (Castiglia 1996:28; Hoare 1994:102; Kuhn 1991:90; Musgrove 1989:18; Sahn 1990:20; Schwartz & Abegglen 1996:20). It would be presumed from these findings that the toddler was not receiving the PEM supplementary feed as planned.

Item 2.12: Birth weight of toddlers in kilograms (N = 47)

Three of the respondents did not answer this question as they had no recollection or record of their toddler’s birth weight.
Figure 4.18 shows that 14 (29.8%) of the toddlers weighed between 1.8 and 2.4 kilograms (low birth weight) whilst ten (21.3%) weighed between 3.1 and 4.3 kilograms with the majority 23 (48.9%) weighing between 2.5 and 3.0 kilograms at birth. It would appear from these findings that one third of the toddlers had a low birth weight. This finding is significant in terms of the current poor nutritional status of the toddlers and their failure to thrive. Marshall (1995:83) is of the opinion that the prevalence of low birth weight indicates that the mothers also suffer from malnutrition.
Item 2.13: Gestational age of toddlers

Figure 4.19 shows that only eight (16,0%) of the toddlers were premature at birth, whilst the other 42 (84,0%) toddlers were full-term at birth. It would appear from these findings that the number of toddlers who were premature at birth was minimal and had no significant role in the poor nutritional status of the toddlers.

Item 2.14: Hospitalisation of toddlers who were premature at birth (N = 8)

Six (75,0%) of the eight respondents whose toddlers were premature at birth, indicated that they were hospitalised for a period of 10 to 21 days for prematurity whilst the other two (25,0%) indicated that their toddlers were never hospitalised. Pryer (1990:17) is of the opinion that a number of interrelated factors, namely socio-economic, political, household
factors and genetics, interact in the development of malnutrition. It would appear from these findings that being premature at birth had no significant role in the poor nutritional status of toddlers, but that other factors could have been responsible.

- Items 2.15 and 2.15.1: Congenital abnormalities amongst toddlers (n = 50)

Forty-nine (98,0%) respondents indicated that their toddlers had no congenital abnormalities at birth, only one (2,0%) indicated that her toddler was a hydrocephalus at birth. The fact that almost all the toddlers were normal babies at birth, is a cause for concern for their failure to thrive. Under these circumstances, according to Schwartz and Abegglen (1996:19), the toddlers could be suffering from non-organic failure to thrive, which could be as a result of multiple psychosocial factors.

- Item 2.16: Food allergy of toddlers (n = 50)

All 50 (100,0%) respondents indicated that their toddlers had no known food allergies. These findings are significant in terms of the poor nutritional status of the toddlers, as all the toddlers should have tolerated their food well including the PEM supplementary feed and should have thrived accordingly.
Item 2.17: Incidence of diarrhoea in the last three months amongst toddlers

Figure 4.20

Incidence of diarrhoea in the last three months amongst toddlers (n = 50)

Figure 4.20 shows that 16 (32,0%) of the respondents indicated that their toddlers had diarrhoea in the last three months prior to the commencement of the study. Research has shown that diarrhoea is known to cause malnutrition by suppressing appetite and interfering with nutrient metabolism and absorption (Graham 1993:226; Le Roux 1992:85; Musgrove 1989:17; Pryer 1990:11). It would appear from these findings that diarrhoea could have had an impact on the poor nutritional status of the toddlers. However, it was satisfactory to note that the majority of the toddlers 34 (68,0%) did not have diarrhoea.
Figure 4.21

Hospitalisation of toddlers since birth (n = 50)

Figure 4.21 shows that only 14 (28.0%) toddlers have been admitted to hospital since birth. It was gratifying to note that the rest of the toddlers 36 (72.0%) had never been admitted to hospital.

Item 2.18.1: Reasons for hospitalisation of toddlers (N = 14)

Of the 14 (28.0%) respondents whose toddlers had been admitted to hospital since birth, seven (50.0%) indicated that their toddlers were admitted for respiratory conditions, three (21.0%) for gastro enteritis and four (29.0%) indicated that they were uncertain of the reasons for their toddler's hospitalisation. The admission of these toddlers to hospital indicates that their general health was unsatisfactory and this could predispose them to
malnutrition.

Item 2.19: Toddlers’ age at commencement of the PEM Programme

Figure 4.22

Toddlers’ age at commencement of the PEM Programme (n = 50)

Figure 4.22 shows that 22 (44,0%) of the toddlers were started on the PEM Programme between 8 and 12 months, 26 (52,0%) between 13 and 18 months and only two (4,0%) after 19 months. In the researcher’s experience, this is a typical situation at the Vosloorus Township where, infants grow well whilst still on the breast, that is, 6 to 12 months of age and normally lose weight during the weaning period, which generally takes place at approximately 12 to 18 months. Previous research on weaning practices also showed that malnutrition occurred during the weaning period of 6 to 23 months or at the age at which breast milk is reduced. The incidence of malnutrition is worse where breastfeeding was the only source of nutrition (Dunjwa 1990:11; Griesel & Richter 1987:12).
Item 2.20: Number of months toddlers had been on the PEM Programme

One respondent did not answer this question as she had a duplicate child health card, the original card with the date of commencement of the PEM Programme was lost and the mother did not know the date.

![Bar chart showing the number of months toddlers had been on the PEM Programme. The chart indicates that 37 (75.5%) toddlers had been on the PEM Programme for two to six months, ten (20.5%) for 7 to 12 months and two (4.0%) for 13 months and 30 months, respectively.]

Figure 4.23

Number of months toddlers had been on the PEM Programme (N = 49)

Figure 4.22 shows that 37 (75.5%) toddlers had been on the PEM Programme for two to six months, ten (20.5%) for 7 to 12 months and two (4.0%) for 13 months and 30 months, respectively. These findings are consistent with the situation at the Vosloorus Township where toddlers placed on the PEM Programme at the child health clinics fail to gain the expected target weight and remain on the PEM Programme for a longer period than the recommended three months.
Item 2.21: Frequency at which the mothers obtained the PEM supplementary feed from the clinics (n = 50)

Forty-one (82.0%) respondents indicated that they obtained the PEM supplementary feed monthly from the clinic and nine (18.0%) indicated that they obtained the supplementary feed at six to eight weekly intervals. The latter group of respondents, nine (18.0%) were obviously the defaulters as toddlers on the PEM Programme were supposed to visit the child health clinic fortnightly for weight monitoring and for food supply every four weeks. It would appear from these findings that the small number of defaulters did not have a significant role in the poor nutritional status of toddlers.

Item 2.22: Other children in the family fed from the PEM supplementary feed

![Figure 4.24](image)

*Figure 4.24*

*Other children in the family fed from the PEM supplementary feed (n = 50)*
Figure 4.24 shows that 46 (92,0%) of the respondents indicated that they did not have other children in the family who benefited from the same PEM supplementary feed. Only four (8,0%) respondents indicated that they had other children in the family who also benefited from the same PEM supplementary feed. Previous research to find out why food intervention programmes failed, indicated that there was a spin-off effect whereby other members of the family who were not on the programmes, also benefited from the food supplied (Burgess et al 1988:28; Levinson 1991:10). Even though only four respondents admitted to sharing the PEM supplementary feed with other family members, from the researcher’s own experience and involvement with malnourished children and families at the child health clinics in the Vosloorus Township, the researcher is of the opinion that there were more households involved in food sharing than the findings indicated.

Item 2.23: Toddlers’ diet other than the PEM supplementary feed (n = 50)

All 50 (100,0%) respondents indicated that their toddlers received other diet besides the PEM supplementary feed. The researcher is of the opinion that these findings are misleading because it is not uncommon in the Vosloorus Township to find some households going without a meal during the day and just managing to have something for supper, which might be inadequate both in terms of quantity and nutrient needs. Often these mothers are embarrassed to admit that there is a problem.

Item 2.23.1: Type of toddlers’ diet (n = 50)

All 50 (100,0%) respondents indicated that their toddlers had soft porridge in the morning and during the day. Forty-nine (98,0%) respondents indicated that their toddlers had pap and gravy and occasionally, potatoes and/or carrots during the day or in the evening. One (2,0%) respondent indicated that her toddler had solid foods only when she could afford it and 20 (40,0%) also indicated that their toddlers had meat or mince occasionally. Pap and gravy appeared to be the most common diet for the toddlers. In general, the toddlers, the diet appeared to be inadequate in green leafy vegetables, beans, fish, eggs, meat and fruits. This was an expected finding in the Vosloorus Township and it supports Burgess et al’s (1988:29)
view that statements like the child “eats what we eat” should be treated with suspicion as the child is usually the last in line and receives what remains, often gravy with no meat or vegetables.

☐ Item 2.24: Weight gain of toddlers at each visit to the clinic

One respondent did not answer this question.

Figure 4.25

*Weight gain of toddlers at each visit to the clinic (N = 49)*

Figure 4.25 shows that 24 (49.0%) of the respondents indicated that their toddlers gained weight at each visit to the clinic and 25 (51.0%) indicated that their toddlers did not gain
weight consistently at each visit to the clinic. This is an expected finding in the Vosloorus Township as the current problem experienced is that the weight gain of toddlers on the PEM Programme, fluctuates at each clinic visit and the reason for this is difficult to determine.

Item 2.24.1: Reasons for the poor weight gain of toddlers (N = 25)

Out of the 25 respondents whose toddlers did not gain weight, eight (32,0%) indicated that their toddlers had been ill recently (including diarrhoea), six (24,0%) indicated that their toddlers preferred the bottle to solids, seven (28,0%) indicated that their toddlers got food/solids irregularly, (they got food only when their mothers could afford it) and four (16,0%) indicated that their other children were also small in stature. These findings could be linked with the previous findings in Items 1.15.1 and 1.15.2, which showed that 24 (almost 50,0%) of the respondents had an average income of R0 to R500 per month and only five (10,0%) of the respondents were self-supporting. Furthermore, these findings support Van Rensburg et al’s (1992:119) view that, “a sparse income, low wages and irregular earnings have a direct relationship to undernourishment and malnutrition and indirectly, to low resistance and a high infant mortality rate”.

Figure 4.26

*Weight problems of siblings (n = 50)*

Figure 4.26 shows that only seven (14.0%) of the respondents indicated that they had other children with weight problems. It is surprising and satisfactory to note that the majority 43 (86.0%) of the toddlers did not have siblings with weight problems and therefore theoretically, there should be no need to share the PEM Programme. It also raises the question as to why these toddlers are malnourished.
4.4 SECTION 3: KNOWLEDGE OF THE PEM PROGRAMME BY THE MOTHERS OF TODDLERS

☑ Item 3.1: Information given to mothers as to why their toddlers needed to be on the PEM Programme (n = 50)

The majority 45 (90,0%) of the respondents indicated that they had been informed why their toddlers had been placed on the PEM Programme. This was an expected finding. What is of concern is the five (10,0%) respondents who indicated that they had not been informed as to the reasons why their toddlers had been placed on the PEM Programme.

☑ Item 3.1.1: The mothers’ understanding as to why their toddlers needed to be on the PEM Programme (N = 45)

Out of the 45 respondents who indicated that they had been informed why their toddlers had to be on the PEM Programme, 44 (97,8%) indicated that they understood why their toddlers needed to be on the PEM Programme and only one (2,2%) respondent indicated that she did not understand. This was a satisfactory finding in terms of the information given to the mothers as it indicated that the need for the PEM Programme was being explained correctly to the mothers.

☑ Item 3.2: Fortnightly weight monitoring of toddlers at the clinic (n = 50)

Thirty-five (70,0%) of the respondents indicated that they took their toddlers to the clinic fortnightly for weighing and 15 (30,0%) indicated that they did not take their toddlers to the clinic fortnightly for weighing. This finding is not consistent with the previous finding, which indicated that approximately 45 (90,0%) of the respondents had been informed of the PEM Programme and understood why their toddlers had to be on the PEM Programme, which included fortnightly visits to the clinic for weighing.
Item 3.2.1: Reasons why toddlers' mothers did not attend the PEM clinic fortnightly (N = 15)

Only seven (46.7%) of the 15 respondents indicated that they often forgot the return dates, three (20.0%) indicated that they frequently visited out of town family members or relatives, two (13.3%) indicated that they were unable to get time off from work fortnightly, two (13.3%) indicated that their toddlers were sick (one admitted to hospital) and one (6.7%) indicated that clinic attendance was never explained to her. It would appear from these findings that the majority of the respondents were ignorant of the importance of weight monitoring of toddlers and what is of concern is the number of respondents who disregarded their return dates and the respondents who did not remember their toddlers's return dates even when these were written on the toddler's road to health card (clients's card) for the mother's convenience. This may be indicative of the mother's ignorance and their low levels of education.

Item 3.3: Explanation of the road to health chart to the mothers of toddlers (n= 50)

Thirty-eight (76.0%) of the respondents indicated that the road to health chart was fully explained to them with regard to their toddlers' weight and 12 (24.0%) indicated that the road to health chart was never explained to them. This finding is important in terms of the poor weight gain of the toddlers and is consistent with the previous findings, which indicated that 15 (30.0%) of the respondents did not take their toddlers to the clinic fortnightly for weighing and, obviously, did not understand the road to health chart.

Item 3.4: Problems experienced with the preparation of the PEM supplementary feed (N = 49)

One respondent did not answer this question. Thirty-nine (79.6%) of the respondents indicated that they had no problems with the preparation of the PEM Programme. However, ten (20.4%) respondents indicated that they experienced problems with the preparation of
the PEM supplementary feed. This finding is of concern in terms of the number of respondents who acknowledged having problems as well as the poor nutritional status of the toddlers as the improvement of the toddlers' weight depended on the correct preparation and implementation of the PEM supplementary feed.

☐ Item 3.4.1: Type of problems experienced with the preparation of the PEM supplementary feed (N = 10)

All ten (20,0%) respondents who experienced problems with the preparation of the PEM supplementary feed indicated that they were not sure of the measurements for the correct preparation of the feed. This is an expected finding in terms of the low level of education of more than half of the respondents 31 (62,0%) as shown in Item 1.22. According to Galway (Cele 1991:15), “illiterate parents depend on verbal instructions by the nurse, which may easily be forgotten”.

☐ Item 3.5: Advice given to mothers at clinics on how to manage problems related to the PEM supplementary feed (n = 50)

Thirty-five (70,0%) of the respondents indicated that they were advised on what to do if they experienced problems with the PEM supplementary feed and 15 (30,0%) indicated that they were never advised on how to deal with problems related to the PEM supplementary feed. This finding is most significant in terms of the effective implementation of the PEM Programme in view of the fact that a third of the respondents had not been informed of how to manage problems related to the PEM supplementary feed.

☐ Item 3.6: Mothers' understanding of why the PEM supplementary feed was recommended for their toddlers (n = 50)

Forty-five (90,0%) of the respondents indicated that they understood why the PEM supplementary feed was recommended for their toddlers and only five (10,0%) indicated that they did not understand why the PEM supplementary feed was recommended for their toddlers. This is a most satisfactory finding and is consistent with findings in Item 3.1 which
indicated that 45 (90.0%) of the respondents had been informed why their toddlers had to be on the PEM Programme.

Item 3.6.1: Mothers' explanation as to why the PEM supplementary feed was recommended for their toddlers (N = 45)

Of the 45 (90.0%) respondents who indicated that they understood why the PEM supplementary feed was recommended for their toddler, 41 (91.1%) of the respondents indicated that the PEM supplementary feed was recommended to enable their toddlers to gain weight and four (8.9%) of the respondents could not explain why the PEM supplementary feed was recommended for their toddlers. The latter finding causes concern about the credibility of the four respondents who indicated in Item 3.6 that they understood why the PEM supplementary feed was recommended for their toddlers but do not know its benefits.

Item 3.7: Changing the PEM supplementary feed (n = 50)

Forty-five (90.0%) of the respondents indicated that they never changed the PEM supplementary feed and only five (10.0%) indicated that they changed the PEM supplementary feed for another feed. This was an expected finding as five (10.0%) of the respondents indicated in Item 3.6 that they did not understand why the PEM supplementary feed was recommended for their toddler and, naturally, they would change it for another feed.

Item 3.7.1: Other substitute supplementary feed given to toddlers (n = 5)

Of the five respondents who indicated that they had changed the PEM supplementary feed, three (60.0%) indicated that they changed the PEM supplementary feed to full cream milk, one (20.0%) indicated that she changed to another formula and one (20.0%) respondent could not explain what other feed she used as a substitute. This finding has major significance in terms of the poor nutritional status of the toddlers as the respondents changed the PEM supplementary feed without consulting the nurses at the clinic or any other professional.
Item 3.8: Follow-up information asked by the nurses at each visit to the clinic (n = 50)

Forty-six (92.0%) of the respondents indicated that they were asked by nurses at each clinic visit whether their toddlers were still taking the PEM supplementary feed. This is a satisfactory finding but what is of concern is that four (8.0%) of the respondents indicated that they were never asked if their toddlers were still taking the PEM supplementary feed which indicates that their PEM Programme was not being monitored adequately.

Item 3.9: Mothers' opinion on the value of the PEM supplementary feed (N = 48)

Two respondents did not answer this question. Forty-six (95.8%) of the 48 respondents indicated that the PEM supplementary feed had helped their toddlers, especially where it formed a regular feed for the toddlers who did not have any other food. Only two (4.2%) of the respondents indicated that the PEM supplementary feed did not help their toddlers. In general this finding was most satisfactory in terms of the effectiveness of the PEM Programme.
4.5 SECTION 4: MOTHERS’ SATISFACTION SCALE ON THE SERVICES PROVIDED

Item 4.1: Assessment of clinic services

Table 4.7: Assessment of clinic services (n= 50)

<table>
<thead>
<tr>
<th>ASSESSMENT OF CLINIC SERVICES</th>
<th>N</th>
<th>MOTHER’S SATISFACTION SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>4.1.1 Walking distance</td>
<td>50</td>
<td>26</td>
</tr>
<tr>
<td>4.1.2 Available at suitable times</td>
<td>50</td>
<td>29</td>
</tr>
<tr>
<td>4.1.3 Waiting times short</td>
<td>50</td>
<td>10</td>
</tr>
<tr>
<td>4.1.4 Frequency of visits reasonable</td>
<td>50</td>
<td>11</td>
</tr>
</tbody>
</table>

A = Strongly agree
B = Agree
C = Neutral
D = Disagree
E = Strongly disagree

Table 4.7 shows that 38 (76,0%) of the respondents indicated that the clinics in their opinion were within reasonable walking distance with only three (6,0%) indicating their dissatisfaction with the distances walked. Thirty-nine (78,0%) respondents indicated that the clinics were available at suitable times and only six (12,0%) respondents disagreed with this statement. Thirty-three (66,0%) indicated that the waiting times were short and 35 (70,0%) indicated that the frequency of the visits was reasonable. Only two (4,0%) and five (10,0%) respondents indicated their dissatisfaction with waiting times and the frequency of clinic visits respectively. However, approximately a third of the respondents were neutral to almost all the statements. It would appear from these findings that the services offered at the clinics were satisfactory to the majority of the respondents. It should be noted that it is a common finding amongst Blacks to give a neutral response rather than a negative one as an attempt not to offend or criticise the other person. This type of response is misleading, an honest and objective response would have been preferable, especially in terms of making
improvements to the PEM Programme.

Item 4.2: Assessment of services offered by nurses

Table 4.8: Assessment of services offered by nurses (n = 50)

<table>
<thead>
<tr>
<th>ASSESSMENT OF SERVICES OFFERED BY NURSES</th>
<th>N</th>
<th>MOTHER’S SATISFACTION SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>4.2.1 Friendly and approachable</td>
<td>50</td>
<td>32</td>
</tr>
<tr>
<td>4.2.2 Encouraging and supportive</td>
<td>50</td>
<td>26</td>
</tr>
<tr>
<td>4.2.3 PEM Programme explained clearly</td>
<td>50</td>
<td>18</td>
</tr>
<tr>
<td>4.2.4 Informs you of toddler’s expected weight</td>
<td>50</td>
<td>14</td>
</tr>
<tr>
<td>4.2.5 Knowledgeable about PEM Programme</td>
<td>50</td>
<td>23</td>
</tr>
<tr>
<td>4.2.6 Instructions clearly given</td>
<td>50</td>
<td>21</td>
</tr>
<tr>
<td>4.2.7 Listened to problems</td>
<td>50</td>
<td>16</td>
</tr>
</tbody>
</table>

A = Strongly agree  
B = Agree  
C = Neutral  
D = Disagree  
E = Strongly disagree

Table 4.8 shows that 48 (96,0%) of the respondents indicated that nurses were friendly and approachable with 32 (64,0%) agreeing strongly. Forty-nine (98,0%) respondents indicated that nurses were encouraging and supportive as well. None of the respondents disagreed with these statements.

Forty-two (84,0%) of the respondents indicated that the PEM Programme was clearly explained by the nurses, five (10,0%) were neutral and three (6,0%) disagreed.

Forty-two (84,0%) of the respondents indicated that the nurses informed them of their toddler’s expected weight, whilst seven (14,0%) were neutral and only one (2,0%) disagreed.
Forty-six (92.0%) of the respondents indicated that the nurses demonstrated good knowledge of the PEM Programme and 43 (86.0%) indicated that the nurses gave clear instructions on the PEM Programme. None of the respondents disagreed with both statements. Forty-seven (94.0%) respondents indicated that the nurses listened to their problems and only one (2.0%) respondent disagreed.

These findings are satisfactory as in all instances, more than half of the respondents were satisfied with the nurses’ attitudes. This was an expected finding as the nurses are supposed to be approachable and supportive to the mothers of toddlers and to ensure that the PEM Programme is clearly understood by the mothers in order for them to implement it correctly.

Item 4.3: Assessment of the PEM Programme

Table 4.9: Assessment of the PEM Programme (n = 50)

<table>
<thead>
<tr>
<th>ASSESSMENT OF PEM PROGRAMME</th>
<th>N</th>
<th>MOTHER'S SATISFACTION SCALE</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>A</td>
</tr>
<tr>
<td></td>
<td></td>
<td>F</td>
</tr>
<tr>
<td>4.3.1 PEM Programme helpful</td>
<td>50</td>
<td>34</td>
</tr>
<tr>
<td>4.3.2 PEM Supplementary feed necessary</td>
<td>50</td>
<td>41</td>
</tr>
</tbody>
</table>

A = Strongly agree
B = Agree
C = Neutral
D = Disagree
E = Strongly disagree

Table 4.9 shows that 48 (96.0%) of the respondents indicated that the PEM Programme helped their toddlers and 49 (98.0%) indicated that the PEM supplementary feed was necessary for their toddlers. None of the respondents disagreed with both statements. These findings appear to be consistent with findings in Item 3.9 where 46 (92.0%) of the respondents indicated that the PEM supplementary feed was not only a supplementary feed for the toddlers but was the only food available to some of the toddlers.
A cross-tabulation was done on the findings of Items 2.19 to 2.25 and 3.1 to 3.9 with the PEM Programme satisfaction scale in Items 4.3.1 and 4.3.2. These findings were discussed with the statistician and were found to be statistically not significant.

4.6 CONCLUSION

In this chapter, the findings of the study were discussed.
CHAPTER 5

Conclusions, recommendations and limitations of the study

5.1 INTRODUCTION

This chapter presents conclusions and recommendations based on the data analysis, and discusses the limitations of the study which were identified.

The purpose of the study was to analyse the reasons why the PEM Programme was not successful in combatting malnutrition amongst toddlers in the Vosloorus Township.

A quantitative, non-experimental exploratory descriptive survey was conducted by means of structured interviews. The questionnaire was developed according to the conceptual framework selected for the study based on the following research questions:

- What factors give rise to malnutrition amongst toddlers in the Vosloorus Township?
• Why do toddlers on the PEM Programme in the Vosloorus Township fail to achieve their expected target weight?

5.2 CONCLUSIONS

The conclusions based on the survey are presented according to Table 3.1 in chapter 3.

5.2.1 Demographic details of the mothers of toddlers (Section 1: Items 1.1 to 1.22)

The conclusions based on the data obtained, are as follows:

☐ Age and marital status

The findings indicate that more than half of the mothers are in the age group 21 to 30 years and are single parents. It is interesting to note that many of the mothers (68.0%) have never been married. From the researcher's own experience, this finding is not alarming as it is common amongst Black urban women, including teenagers, to have children out of wedlock.

☐ Total number of people in the household and average household income

Even though the majority of the households have an average of six people per household, a number of households have up to 12 people living with them. This situation is of concern, especially in terms of malnutrition amongst toddlers. This situation is further aggravated by the fact that approximately half of the households have an average monthly income of between R0 and R500. K'Okul (1991:135), Kuhn (1991:91), Musgrove (1989:16) and Sahn (1990:2-3) also found that children of larger households were more vulnerable to malnutrition because of the pressure on the dietary pot and the possibility of not being able to feed them all adequately.
Accommodation of the mothers of toddlers

More than half (66.0%) of the mothers have no accommodation of their own. Half live with family members who form their support system and some of the mothers live with friends or rent their accommodation. Only ten of the mothers live in shacks. It is not surprising that many mothers live with family members as the general trend amongst Blacks has been for unmarried children, including adults (male and female), to remain in the parental home until they get married and have their own accommodation. It is also common for the youngest son to remain and keep the parents' home even after marriage, which effectively means that a woman who is married to the youngest boy in the family, may always live with her in-laws forever.

This situation is changing, especially in relation to professional or career women, who can afford home loans. They buy properties and move out of their parents homes even if they are single.

Environmental conditions in the homes of toddlers

The majority of the mothers have access to running or tap water, waterborne sewerage and electricity in their homes. However, what could not be determined is the level of cleanliness of each household as the study was not conducted at the toddlers' homes. Based on the findings, the mothers should have been able to maintain a clean environment, with a minimal potential risk of water contamination and waterborne diseases. The poor nutritional status of the toddlers could have been due to socio-economic, political, genetic, dietary and other factors.

Employment status and source of income of the mothers

The majority of the mothers (88.0%) are currently unemployed. More than half of the mothers are dependent on their parents and some mothers are dependent on friends and relatives. Unemployment is common amongst Black South African women. This is
substantiated by the Department of Welfare (1997b:9) and Dunjwa (1990:15) who found that unemployment has been severe amongst women, especially young people under the age of 24 years. The extent to which the mothers of toddlers are dependent on other people could possibly be conducive to the development of malnutrition amongst toddlers. Richter and Griesel (1986a:8, 11) and Sahn (1990:20) maintain that single and dependent mothers have no influence over the household budget since it is not theirs and they have to rely on the handouts of relatives and friends to feed their children or families. From the researcher's own experience in the Vosloorus Township, these handouts are often not sufficient in quantity or quality.

- Alcohol intake and smoking habits of the mothers

Approximately all the mothers did not take alcoholic beverages or smoke during pregnancy. This is a satisfactory finding as, according to Black culture, women are not expected to drink or smoke. This tradition is gradually changing, especially in the urban areas due to urbanization and cultural diversity. This trend could have long-term implications especially in terms of socio-economic factors and the health of both the mother and toddler.

- Complications during labour, pregnancy and hereditary conditions

Most of the mothers did not have complications during pregnancy or labour. Only four mothers indicated that there was a history of hereditary condition (asthma) in the family. It would appear that the poor nutritional status of the toddlers is not as a result of poor antenatal and/or perinatal care of the mothers as the findings indicated that the number of mothers with complications during pregnancy/labour was statistically not significant. This could be as a result of household, political, socio-economic, genetic and other factors known to cause malnutrition.

- Educational level of the mothers

All the mothers had received some schooling with less than half of the mothers having an educational level of between Standard 8 and 12. The researcher is of the opinion that the
political and students’ unrests as well as the teachers’ strikes during the 1980's and early 1990's could have contributed to the low levels of education in Gauteng, including Vosloorus Township. The general trend was for students to remain in the same educational standard every year due to unrests and class boycotts, which prevented them from writing the end-of-the-year examinations. It is sad to note that the current situation is no better. This was substantiated by the SABC three evening news broadcast with regard to the 1997 matric results on 6 January 1998. It was reported that the matric results confirmed a general trend of a lower pass rate. This downward trend was found in approximately all the Provinces, with Gauteng having obtained a 51,5% pass rate, 4,0% less than the 1996 pass rate. Calitz (1998:14) (Executive Officer of the South African Certification Council), also wrote that “what is being observed is not a sudden problem. It is a continuation of a trend which started in the 1980's: a steady increase in the number of candidates of the former Department of Education and Training, accompanied by a gradual but steady decline in performance from 48,0% pass rate in 1995 to 38,0% in 1993”.

5.2.2 Details of toddlers on the PEM Programme (Section 2: Items 2.1 to 2.25)

The conclusions based on the data obtained, are as follows:

- The ages of toddlers

More than half of the toddlers are in the age group 12 to 18 months. According to the researcher's own experience in the Vosloorus Township, PEM is commonly identified amongst children from the age of one year and older, either because breastfeeding has been stopped and the weaning diet is inadequate, or the child is getting breastmilk as the sole source of nutrition, which is also inadequate for a toddler.

- Type of feed and introductory solids for toddlers

All the toddlers had solids already introduced into their diet with less than half of the toddlers on breast and bottle feeds. What is of concern is the fact that more than half of the
toddlers had soft porridge, known as *mdoko* or *leshelesheleby* as introductory solids. *Mdoko* is prepared from maize meal and like most cereals, is supposed to be served with milk. It is, however, not uncommon to serve it without milk as milk is a scarce commodity for most households in the Vosloorus Township, as in most urban Black Townships. This has been substantiated by Cominsky et al (1993:941) and Griesel and Richter (1987:11) in studies on malnutrition where they discovered the prevalence of watery porridge (*lesheleshele*), grossly diluted powdered barley and porridge or gruel made from maize meal, being used as introductory solids for children. This could be a major contributing factor as to why the toddlers fail to thrive.

**Age of introduction of solids**

More than half of the toddlers had solids introduced into their diet in the two and three months age group. Even though recent literature recommends the introduction of solids between four and six months of age, previous research found that mothers were providing mixed feeding at six weeks Hoffman (Griesel & Richter 1987:11). From her own experience at child health clinics in the Vosloorus Township, the researcher maintains that there is no reason to be concerned as infants are often found to be on mixed feeding as early as four weeks without any observed or reported ill effects.

**Breastfeeding status and weaning practices**

The majority of the toddlers had been weaned off the breast. The average age of weaning of toddlers was between 7 and 12 months. Some toddlers had been weaned off the breast between 13 and 24 months. Late weaners are not uncommon amongst Blacks according to the researcher's own experience. It is interesting to note that a large number of toddlers are in the age group 12 to 18 months, which is the age at which breastmilk has been stopped. This is substantiated by Dunjwa (1990:11) who found that malnutrition occurred during the weaning period of 6 to 23 months. Similarly, Westphal (Griesel & Richter 1987:12) also found that Black infants develop well until the usual age of weaning, namely 6 to 12 months, and by the time they are 12 months, their growth pattern has deteriorated noticeably.
Method of weaning

More than a third of the toddlers had been weaned off the breast abruptly and the most popular weaning method used was separation of the child from the mother. Although psychological stress was not researched in this study, it should be noted that previous studies on weaning practices indicated that traditional practices of separating the child from the mother during weaning could lead to psychological stress and the development of malnutrition amongst toddlers (Cominsky et al 1993:842; Griesel & Richter 1987:11; Howard 1994:24; K'Okul 1991:94).

Care givers of toddlers

More than half of the toddlers are cared for by their mothers. Few children are cared for at a crèche during the day. It is interesting to note that all ten mothers whose toddlers are cared for at a crèche are ignorant of the details of the crèche, such as, the number of children at the crèche and the diet of their toddlers at the crèche. The lack of knowledge of the mothers is probably due to their low levels of education as indicated in the findings. Maternal education enables the mother to be knowledgable of the child’s nutrient needs and the nutritional value of different foods (Castliglia 1996:28; Kuhn 1991:90; Sahn 1990:20). According to the researcher’s own experience in the Vosloorus Township, uneducated mothers do not ask many questions and consequently, they would not ask or question the diet or number of children at the crèche for fear of their children not being accepted or being victimised at the crèche.

Birth weight and gestational age of toddlers

More than half of the toddlers weighed between 3,0 and 3,7 kilograms. The majority of the toddlers were full-term at birth. Since approximately a third of toddlers had low birth weight and a smaller number of toddlers were premature at birth. The researcher of the opinion that the poor nutritional status of toddlers could be as a result of the mothers also suffering from malnutrition. This opinion is also shared by Marshall (1995:83).
Congenital abnormalities and allergies

The findings indicated that the majority of toddlers had no congenital abnormalities at birth and all the toddlers have no known allergies. The toddlers should be in a good state of health since the findings showed no indication of any organic problems that could be causing malnutrition. Schwartz (1996: 19) maintains that the toddlers could be suffering from non-organic failure to thrive, which could be as a result of multiple psychosocial factors.

Recent illnesses and hospitalisation of toddlers

A third of the toddlers had diarrhoea in the last three months prior to the commencement of the study. Less than a third (14) of the toddlers had been hospitalised since birth, half of them for respiratory conditions. It is also a known fact that diarrhoea causes malnutrition by suppressing appetite and interfering with nutrient metabolism and absorption, but this still does not account for the poor nutritional status of the rest of the toddlers.

Toddlers' age at commencement of the PEM Programme

Approximately half of the toddlers were started on the PEM Programme between 13 and 18 months of age. The majority of the toddlers have been on the PEM Programme for two to six months and during this time, obtained food supplementation from the clinic on a monthly basis. Research on weaning practices has shown that malnutrition occurred during the weaning period of 6 to 23 months or at the age at which breastfeeding is stopped (Dunjwa 1990:11; Griesel & Richter 1987:12). Similarly, according to the researcher’s own experience at the Vosloorus Township, malnutrition is not common before the age of 12 months because toddlers have not been weaned off the breast yet. Their condition gradually deteriorates after 12 months of age when weaning takes place and food supplementation is not available or is inadequate.
Toddlers’ diet other than the PEM supplementary feed

Approximately half of the toddlers were given other supplementary diet beside the PEM supplementary feed. Pap and gravy is the most common diet for toddlers and, in general, the diet is inadequate in green leafy vegetables, beans, fish, eggs and meat and fruits. This was an expected finding in the Vosloorus Township because most often, nurses are confronted with situations where individuals or families come to the clinic to ask for assistance and claim that they have nothing to eat. The researcher agrees with Burgess et al (1988:29), who caution that statements like the child “eats what we eat”, should be viewed with suspicion as the child is usually the last in line and receives what remains, often gravy with no meat or vegetables.

Weight gain of toddlers

Half of the toddlers did not gain weight consistently at each visit to the clinic. Reasons given ranged from recent illnesses, preference of bottle to solids, irregular feeding, to, the presence of other children in the family with a small stature. This is an expected finding if the toddlers did not get food with adequate nutrients and if their poor nutritional status is due to genetic factors.

Weight problems of siblings

Only a small number of respondents indicated that they had other children with weight problems in the family. Theoretically, this means that the possibility of the majority of toddlers sharing the PEM supplementary feed with their siblings was minimal. The practical implications of this finding will only be established by future research, which should be conducted at the homes of the toddlers.
5.2.3 Knowledge of the PEM Programme by the mothers of toddlers (Section 3: Items 3.1 to 3.9)

The conclusions based on the data obtained are as follows:

- **Information given to the mothers of toddlers on the PEM Programme**

  The majority of the mothers acknowledged that they have been informed and understand reasons as to why their toddlers were placed on the PEM Programme. This is a satisfactory finding and a good reflection of the knowledge and information the nurses give to the mothers at the clinic.

- **Fortnightly weight monitoring**

  Approximately one third of the mothers did not take their toddlers to the clinic fortnightly for weight monitoring and the reasons given ranged from forgetting return dates, visiting out of town family members or relatives, toddlers being sick and not knowing the frequency of clinic attendances. However, more than half of the mothers acknowledged that the road to health chart was fully explained to them with regard to the toddler’s weight. It is interesting to note that only 76,0% of the mothers understand the road to health chart when initially, 90,0% of the mothers acknowledged that the PEM Programme was fully explained to them and they understood it including fortnightly weight monitoring, which forms part of the PEM Programme.

- **Problems experienced with the preparation of the PEM supplementary feed**

  Less than a third of the mothers experienced problems with the preparation of the PEM Programme, such as not being sure of the measurements for correct preparation of the feed. Approximately one third of the mothers insist they were never given information on how to deal with problems related to the PEM supplementary feed. The researcher notes with concern the lack of consistency with regard to the information given by the mothers in terms
of their understanding of the PEM Programme as a whole. The inconsistency observed from the information given by the mothers is probably due to ignorance resulting from low levels of education. This is substantiated by Cele (1991:15) in her study on feeding practices of Black infants in Lamontville. She states that “illiterate parents depended upon verbal instructions by the nurse which may easily be forgotten”.

 Mothers’ understanding of why the PEM supplementary feed was recommended for toddler

The majority of the mothers understood why the PEM supplementary feed was recommended for their toddlers, namely, to enable the toddlers to gain weight. This is a satisfactory finding and is consistent with the previous admission of the mothers that they had been informed why their toddlers had to be on the PEM Programme.

 Changing the PEM supplementary feed

Only a very small number of the mothers changed the PEM supplementary feed for full cream milk and other formula. What is of concern in this action is that the mothers substituted their toddlers’ supplementary feed without consulting any professional person to find out about the nutrient content of the substitute feed.

 Information on the PEM Programme asked by nurses at each clinic visit

The majority of the mothers acknowledged that the nurses enquired at each clinic visit whether their toddlers were still taking the PEM supplementary feed and they also think that PEM supplementary feed is helping their toddlers. This finding is most satisfactory as the nurses are supposed to determine whether the mothers are still using the PEM Programme or not, find out about problems encountered and give support and encouragement at each clinic visit.
5.2.4 Mothers' satisfaction scale on the services provided (Section 4: Items 4.1 to 4.3)

5.2.4.1 Assessment of clinic services (Item 4.1)

The conclusions based on the data obtained are as follows:

More than half of the mothers feel that the clinics are within walking distance and they are available at suitable times. The information also indicated that the waiting times and the frequency of visits was considered to be reasonable by more than half of the mothers. This finding is most satisfactory and important. It reflects good planning and adequate provision of health facilities and resources by the former Vosloorus City Council in conjunction with the Health Department. The distances which clients or patients have to travel and the availability of services will inevitably determine the extent to which the services will be utilised.

5.2.4.2 Assessment of services offered by nurses (Item 4.2)

The conclusions based on the data obtained are as follows:

- **Nurses’ attitudes**

  Approximately all the mothers felt that the nurses are friendly, approachable, encouraging and supportive. This is a satisfactory finding as the mothers need a warm and friendly environment in which they can open up and talk about their problems, which is often not an easy thing to do. Encouragement and support are essential for the success of the PEM Programme.

- **Information given to the mothers at the clinic**

  The majority of the mothers stated that the nurses explained the PEM Programme clearly to them and informed them of their toddler’s weight at each visit to the clinic. This is a positive
indication of the education nurses give to the mothers. Once the mothers have the necessary knowledge about their toddlers' weight problem and the PEM Programme, they will be motivated to comply with the additional clinic visits for the purpose of growth monitoring and to do whatever they are advised to do within their means.

Nurses’ knowledge of PEM Programme and listening ability

The majority of the mothers stated that the nurses demonstrated good knowledge of the PEM Programme and gave clear instructions. Almost all the mothers stated that the nurses listened to their problems. This is an important finding as the nurses’ input was found to be valuable by the majority of the mothers. Even more important is the finding that the nurses listened to the mothers and to their problems no matter how small. It is always reassuring to know that someone (like the nurses) cares and they are always there for you whenever you need them.

5.2.4.3 Assessment of the PEM Programme (Item 4.3)

The conclusions based on the data obtained are as follows:

- Almost all the mothers are of the opinion that the PEM Programme helped their toddlers and that the PEM supplementary feed is necessary for their toddlers. This is especially true in situations where the PEM supplementary feed becomes the only feed or food available to the toddler as it has been indicated in the findings.

The researcher is of the opinion that the results of sections 4.3 and 4.4 of the study could be misleading. In section 4.3, the mothers’ responses with regard to their knowledge and understanding of the PEM Programme were not consistent throughout the section. In section 4.4, few mothers remained neutral and did not reveal their true feelings about the clinic services, the nurses’ attitudes and the value of the PEM supplementary feed. In general, it appears that the majority of the mothers are satisfied with the above variables.
5.3 LIMITATIONS IDENTIFIED DURING THE STUDY

During the course of the study, certain limitations were identified. The most significant limitations were the following:

- Interviews were not conducted at the homes of the toddlers. The researcher was as a result, deprived of valuable information and an opportunity to observe the home conditions of toddlers so as to get first-hand information on socio-economic factors, household factors including mother-child relationships and environmental aspects and possibly, what feed is given to the toddler and how it is prepared.

- Follow-up questions were not asked regularly to give clarity to responses and or justification of the response such as Item 1.15 employment status: the career or occupation of working mothers was never asked. Similarly in Item 1.18 smoking during pregnancy: if mothers answered “yes” to smoking during pregnancy, they were not asked how many cigarettes per day Item 2.2 type of feed: one of the responses was “other”, but there was no follow-up question to indicate what was meant by “other”.

- The high defaulter rate resulting in poor attendances at child health clinics affected the availability of the target population and consequently, a small sample size was selected.

- The mothers’ preference to remain neutral to some questions and or say what they think the researcher wants to hear and not the truth, compromised the study and was misleading.

Some of the above limitations offer scope for further research and will be referred to in the recommendations to follow.
5.4 RECOMMENDATIONS ARISING FROM THE RESEARCH PROJECT

The first democratically elected South African Government has given great prominence to nutrition. The government has committed itself to the elimination of hunger and the reduction of malnutrition among all people living in South Africa, particularly women and young children, within the framework of the RDP (McLachlan & Kuzwayo 1996:37). The Department of Health (1997:84) also committed itself to taking the lead in advocating optimal nutrition by acknowledging that "nutrition is a basic human right and a prerequisite for the attainment of a person’s physical and intellectual potential".

A major strength of the RDP in relation to nutrition is that political commitment at the highest level is done in an integrated endeavour. A great challenge for the politicians is to ensure that the principles and programmes of the RDP, inter alia, the integrated approach, people-centred development and meeting basic needs, are developed into policies and to ensure their effective implementation (Marshall 1995:83).

Addressing the problem of malnutrition is a multifaceted action that the nurse alone cannot manage. It therefore needs an intersectoral effort from the role players: nurses, social workers, the community, non-governmental organisations, the politicians, and the public and the private sector. The levels at which this intervention should take place the primary health care, district, regional, provincial and national levels. Proper coordination of activities at the various levels cannot be over-emphasised. On the strength of the above and based on the research project the following recommendations are made:

It is recommended that the following aspects should be attended to

- education of the mothers should be done by means of demonstrations and role plays to enhance their understanding of concepts

- regular growth monitoring and assessment of infants and children under five years and prompt treatment and referral of ill children
• provision of food supplementation to malnourished pregnant women through the Protein-Energy Malnutrition (PEM) scheme

• education of the community on prolonging birth intervals and avoidance of teenage pregnancy

• optimum immunisation coverage of children under five years, especially against measles

• promotion of breastfeeding, correct weaning practices, oral rehydration and the provision of a healthy environment and clean water

• nutrition education for care givers of infants and young children and pregnant and lactating women

• integration of health and social services to provide proper and prompt intervention to poverty-stricken families with health-related problems

• review of existing on-site and take-home feeding programmes

• development by local people themselves of community nutrition programmes, based on a holistic understanding of the problems

• provision of adequate adult literacy education facilities for the community

• development of a health information system on nutritional status and socio-economic indicators of need to ensure that targeting of beneficiaries and support goes to the poorest and most vulnerable

• empowerment of unemployed women through skills development, such as the Social Welfare's flagship programmes
• development of appropriate monitoring and evaluation systems to identify to what extent well-being, including nutritional well-being, has actually been improved

• provision of intersectoral collaboration at all levels to improve households’ access to sufficient food

• extension of the list of basic foodstuffs exempt from VAT to make basic food accessible to all

• transformation of existing nutrition programmes, namely the PEM scheme, the Primary School Nutrition Programme and the NNSDP

• integration of the PEM Scheme and the NNSDP into a national nutrition programme. (The target groups of these two programmes overlap to some extent.)

• improvement of socio-economic conditions of all South Africans through job creation projects, skills development and social development programmes

5.5 RECOMMENDATIONS FOR FUTURE RESEARCH

It is recommended that future research should

• be conducted at the homes of the toddlers for the researcher to be able to observe the household conditions especially in relation to the socio-economic and environmental conditions, mother-child interaction and possibly, the preparation of the PEM supplementary feed

• investigate psychological stress and the development of malnutrition amongst toddlers

• investigate methods of educating care givers, crèche personnel and childminders on child care and nutrition
Assumptions

Approximately all the assumptions were substantiated by the findings.

Assumption 1

Abrupt weaning of children with or without maternal separation has a negative effect on the eating pattern of toddlers in the Vosloorus Township.

This was found to be the case in the Vosloorus Township as over a third of the toddlers have been weaned off the breast abruptly and the most popular method used was separation of toddlers from their mothers.

Assumption 2

Ignorance of the mother on the introduction of solids into the diet of a toddler causes malnutrition.

The findings show that the majority of the mothers were ignorant of introductory solids or weaning foods and, in most instances, watery porridge (mdoko) made from maize meal was given to the toddlers.

Assumption 3

Low socio-economic status of the family affects the nutritional status of the toddler.

Unemployment and poverty had a significant role in the poor nutritional status of the toddlers as indicted by the fact that only six mothers were employed.
Assumption 4

The composition of the family influences the implementation of the PEM Programme in the Vosloorus Township.

The average family size was found to be six, with an exceptional case of twelve members in the household. Previous research and the researcher's own personal experience at the child-health clinics in the Vosloorus Township have shown that food supplementation is not reserved exclusively for the malnourished child when there are other hungry children and adults in the household. Where larger rations are provided to account for family sharing, some portion of the food is often sold, as substantiated by the findings of Levinson (1991:10).

Assumption 5

Ignorance of the mother affects the implementation of the PEM Programme and the weight gain of the toddler.

This was found to be true in the Vosloorus Township. Toddlers have been placed on the PEM Programme for about six months and longer in some cases, without gaining weight sufficiently or consistently to be discharged from the PEM Programme. This has been largely due to the fact that mothers did not understand the PEM Programme clearly, even when they said they understood. They also did not fully understand and comprehend the instructions given by the nurses at the clinics.

Assumption 6

Unhygienic living conditions contribute to disease and toddler malnutrition in the Vosloorus Township.

This assumption was not conclusively substantiated as it was found that in general, the majority of the mothers had access to running tap water, waterborne sewerage, and electricity
in the home and very few toddlers suffered from diseases that could lead to malnutrition. This assumption could have been conclusively substantiated if the researcher had visited the homes of the toddlers. Hence this will be recommended for future research.

5.6 CONCLUSION

The poor socio-economic status of the majority of households in the Vosloorus Township, with specific reference to unemployment, low levels of education and ignorance, has had a disastrous effect on the nutritional status of children and their families. Poverty coupled with the ignorance of the mothers prevented the mothers from making adequate use of resources at their disposal to their advantage. Consequently, this contributed to the development of malnutrition amongst toddlers and failure of the PEM Programme to improve the toddlers' weight and toddlers remain on the PEM Programme for longer periods than the three months intended.

The results of this study indicate that the development of malnutrition amongst toddlers is not as a result of any organic dysfunction, but probably due to non-organic failure to thrive as a result of socio-economic, political, dietary and environmental psychosocial factors. For this reason, an intersectoral approach to the elimination of poverty, hunger and malnutrition is needed. The recommendations made will need the involvement and participation of all role players. The RDP is our major strength and the politicians should be held to the commitment that they have made at the higher level to combat malnutrition and to ensure that the principles and programmes of the RDP are implemented effectively. Once all the heads start rolling and all the role players make a concerted effort to implement these recommendations, there is no reason why the socio-economic conditions and household food security of all the citizens of the country should not improve. Consequently the literacy status of the mothers of toddlers will improve and they will be able to provide toddlers with adequate food and adequate nutrient needs for their growth. Subsequently, toddlers will gain sufficient weight regularly and not remain or be dependent on the PEM Programme for longer than the three months for which it is intended. Furthermore, if the CBNP is administered properly, it should bring relief to many households in the Vosloorus Township and thereby, reduce the levels of malnutrition.
LIST OF REFERENCES


Bloom, DY. 1988. *Social and dietary practices of Soweto families who protect against overt malnutrition in their children.* (SL: sn)


ANNEXURE A

Community-based Nutrition Programme
MEMORANDUM

DATE: 8 MAY 1997

TO: THE TOWN CLERK
1) HEAD: HEALTH DEPARTMENT
2) CHAIRPERSON - IDMT

FROM: MR B SIBEKO
REGIONAL DIRECTOR
EAST RAND SERVICES

RE: COMMUNITY BASED NUTRITION PROGRAMME: BUDGET ALLOCATION FOR 1997/98

The East Rand District Health Services and the sub-directorate Nutrition kindly requests your assistance regarding the recommendation of funding to NGO's in your district.

The suggested recommendation committee composition is attached as Annexure A. This office recommends that you nominate 2 representatives from each of the following to assess district NGO applications:

Education Department (ECD)
I.D.M.T.
Section 59 Health/Welfare Committee
Health Forum

Attached please find a schedule of meetings per district (Annexure B) where we would like the people to be present.

Annexure C is a copy of the form with criteria for assessment.

Your urgent co-operation will be highly appreciated.

Enquiries, please contact Ms. Norma Masemola, 820-0462/820-0493, or Ms. P. Mbadl, 820-0499.

Thank you

REGIONAL DIRECTOR

East Rand Gauteng Health Department, 40 Catlin Street, Germiston, 1400
Tel: (011) 820-0462, Fax: (011) 873-5891
## ALLOCATION MEETING

**DATE:** 12-05-1997  
**VENUE:** 3rd Floor West Wing  
East Rand Regional Health Office  
40 Catlin House  
GERMISTON

<table>
<thead>
<tr>
<th>DISTRICT</th>
<th>TIME</th>
</tr>
</thead>
<tbody>
<tr>
<td>ALBERTON</td>
<td>08H00 - 08H25</td>
</tr>
<tr>
<td>BOKSBURG</td>
<td>08H30 - 08H55</td>
</tr>
<tr>
<td>BENONI</td>
<td>09H00 - 10H00</td>
</tr>
<tr>
<td>GERMISTON</td>
<td>10H10 - 10H30</td>
</tr>
<tr>
<td>SPRINGS</td>
<td>10H30 - 11H00</td>
</tr>
<tr>
<td>HEIDELBERG</td>
<td>11H00 - 11H30</td>
</tr>
<tr>
<td>KEMPTON PARK/TEMBISA</td>
<td>11H30 - 12H00</td>
</tr>
</tbody>
</table>
Recommended composition of the committee.

- Chairperson: Regional Director or his/her representative
- 2 Members of the IDMT's
- 2 Members of the Sec 59 Health/Welfare committees where available;
- 2 Members of the community or CBNP Regional/ District committees who is NON BENEFICIARIES (not as an NGO or an individual).
- Dietician per region.
- Community Liaison Officer
- Person responsible for CBNP finances.
- Nutrition expert: (The following people can be contacted:
  Ms Annerie Willemsen - 083 675 4080

  DEVELOPMENT OFFICER FROM EDUCATION
GAUTENG DEPARTMENT OF HEALTH

COMMUNITY BASED NUTRITION PROGRAMME
ASSESSMENT FORM FOR
REGIONAL RECOMMENDATION COMMITTEE
1997/98

Name of Organisation: ____________________________

Area/District of operation: ____________________________

1. OPERATION
   If the answer to 1.1, 1.2, 1.3, 1.4 and 1.5 is NO - no further evaluation is required and
   the application must be referred back to the organisation by the Region with a letter
   stating the requirements.
   (To be reported by Community Liaison Officer)

   1.1 CONSTITUTION

   1.2 DOCUMENTATION

   1.3 NEEDS ASSESSMENT
       (refer point 8.2 on page 3 application form)

   1.4 FUNCTIONAL COMMITTEE
1.5 VALUE OF PROJECT DESCRIPTION:
(refer point 11.1 page 5 application form)

<table>
<thead>
<tr>
<th></th>
<th>Value</th>
<th>Utility</th>
<th>Quantity</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>

1.6 APPLICATION OF ENTRY / EXIT CRITERIA:
(refer point 11.2 page 5 application form)

Sub-total: Operational:

2. Track record:
(To be complete for existing NGO's on the CBNP)

2.1 Duration of nutrition aspect of the project:
(feeding/food parcels)

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td></td>
</tr>
</tbody>
</table>

2.2 General usage of previous funds

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>-10</td>
<td>1</td>
<td>5</td>
<td>10</td>
<td></td>
</tr>
</tbody>
</table>

2.3 Monthly returns

<p>| | | | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
<td></td>
</tr>
</tbody>
</table>
2.4 Direct assistance - deviations from prescribed food stuff list:

<table>
<thead>
<tr>
<th>Day</th>
<th>Concluded</th>
<th>With Permission</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

Sub-Total Track record:

3. On site visit:

3.1 Admin procedures
(To be submitted by financial officer - see form 1)

<table>
<thead>
<tr>
<th>Notes</th>
<th>Admin</th>
<th>Proof</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

3.2 Bookkeeping procedures
(same as 3.1)

<table>
<thead>
<tr>
<th>Notes</th>
<th>Admin</th>
<th>Proof</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>1</td>
<td>2</td>
<td>4</td>
</tr>
</tbody>
</table>

3.3 Beneficiary control procedures
(same as 3.1)

<table>
<thead>
<tr>
<th>Book</th>
<th>Return</th>
<th>Leaveage</th>
<th>Report</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td></td>
<td>2</td>
<td>5</td>
</tr>
</tbody>
</table>

Sub-Total: Admin.
4. Nutrition
(to be completed by dietician OR community liaison officer where NO dietician is currently available. All these organisations should receive CONDITIONAL FUNDING for three months to enable the dietician/nutritionist to give input in his regard)

4.1 Nutrition Education
(refer page 4 of application form)

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.2 Linkages with clinic
(refer page 4 of application form)

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>1</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.3 Plan for counter performance/growth monitoring/life skills
(refer page 4 of application form)

<table>
<thead>
<tr>
<th>TOTAL</th>
<th>0</th>
<th>4</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sub-Total: Nutrition and Counter performance

SUMMARY:

1. Value of project
2. TRACK RECORD
3. ADMIN
4. NUTRITION/COUNTERPERFORMANCE
5. GRAND TOTAL:
**COMMENTS:**


**TARGET GROUP:**

<table>
<thead>
<tr>
<th>Target Group</th>
<th>Number Applied</th>
<th>Number Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Targetted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Non-Targetted</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**TOTAL AMOUNT RECOMMENDED:**

(based on the formula: R42 per person for food parcels, 75c per child in crèche feeding and R1.00 per day for soup kitchens
NO allocation to exceed R250 000 (5357 persons) with 10% admin)

**CHAIRPERSON:**

REGIONAL RECOMMENDATION COMMITTEE

DATE:
COMMUNITY BASED NUTRITION PROGRAMME (CBNP) 1997/98
1. INTRODUCTION:

The Focus of the CBNP is on Nutrition and a gradual shift in the allocation of funds started during 1996. Although the emphasis on direct food aid (food parcels) has been reduced due to budget cuts we are far from our vision that this type of intervention will become less necessary. However, it is recognised that his cannot be achieved overnight and those in need must continue to receive support until more people-centred and sustainable options are developed. Existing projects will be encouraged and supported in developing better ways of meeting the needs of the destitute. The proportion of funds going towards food production, income generation or addressing specific nutritional problems will be gradually increased.

Years of implementing nutrition programmes have provided the basis for improving nutrition activities and have led to the development of a new philosophy about nutrition programming especially in poor communities.

* We must implement nutrition as a human right and any development must be measured both from the scientific and ethical perspective / the moral responsibility to the poor

* There is need to adopt the changed view of the poor:
  - the poor must be key actors and not passive beneficiaries;
  - the majority of the poor are capable of understanding their own situation;
  - the majority of the poor know what is best if well informed and given resources;
  - the local people are the ones who know the local complexities, cultures, likes, dislikes, power systems.

* Malnutrition is best addressed through alleviation of poverty and we should endeavour to address the processes that create poverty and not just the poverty

* The poor need to be targeted, not all people living in poor communities are poor;

* Any assistance must support the most efficient coping strategies already in place;

* If the capacities of the poor people are enhanced they will be able to be in charge of their own situation: the facilitators is to:
  - increase their understanding of the problem;
  - improve their skills in undertaking development projects;
  - increase their power over resources;
  - reduce gender disparities through training, education, skills development and active involvement in decision making.

* Other important successes include:
  self sustainability and replicability of nutrition related development efforts in similar surroundings; and
  efforts must have nutritional benefits and be achievable with agreeable costs.

Funding for CBNP project should address all the stages of the programme. The funds for the CBNP should be directed to projects which empower vulnerable communities,
targeting mainly women and children as beneficiaries and active participants in the projects. The concept of projects which increase communities' access to food, coupled with nutrition education should be marketed during the mobilisation period.

Projects which strive to improve the nutritional status of communities by producing food should be given priority after the completion of an approved PRA. Income generating projects should be linked with nutrition and household food security. Projects which aim at empowering communities towards self-reliance should be promoted. E.g. projects which aim to:

* promote household food security;
* promote the development of small scale farming and business enterprise;
* inform and educate women on nutrition aspects e.g. educating women on how to prepare home made weaning foods, how to preserve, process and store excess food;
* empower women of basic life skills, e.g. budgeting, basic accounting, caring for children, etc.;
* educating women on the importance of attending the "well baby clinic" to weigh their children, and how to interpret and understand the growth chart.

All these activities should be coupled with nutrition education.

**BASIC REQUIREMENTS FOR ALL PROJECTS:**

a. Community involvement/control/accountability

b. Strategy for sustainability

c. Linkage to Health services AND other Departments

d. Collaboration with other sectors.

e. Involvement in a Development programme

Projects which aim at empowering communities and NOT individuals towards self-reliance should be promoted.

**LIST OF DOCUMENTS TO FORM PART OF THE APPLICATION:**

Constitution
List of Committee
List of beneficiaries
Audit statement (where applicable)
Banking information and verification from the Bank as to who is the signatories to the account
Last bank statements

**THREE QUOTATIONS**
**PHOTOSTAT COPIES**
2. GENERAL TARGET GROUPS:

2.1 Targeted Interventions:

i.e. serving the nutritionally vulnerable or nutritionally deficient groups. Capacity to monitor nutritional status will be a strong recommendation. The family of such individuals may need to be included, but people’s own coping skills must not be undermined.

a. Pre-School and Child Care: This should contain educational and developmental aspects that needs to be developed. Linkage to clinics/growth monitoring will be a strong recommendation.

b. Women’s Groups: Projects which support families/mothers of pre-school children.

c. Pregnant and Lactating Women: Services to this group need to be developed and special attention should be given to linking this to the clinics/ante-natal care.


e. Elderly and Disabled: If not in receipt of a pensions. This group may also be involved in Development projects to supplement their pensions. Involvement of the elderly or disabled persons in projects for other groups (pre-school or homeless children) would be encouraged.

2.2 Relief Interventions:

Social relief (food parcels, on-site feeding which demonstrates:

* Counter performance

* Strategy for sustainability

* Clear targeting:
  Entry and Exit criteria for beneficiaries
  Screening procedures and field visits.

* Criteria to be used:

  unemployment but registration with Manpower and review every 3 months
  Homeless people.

2.3 Development

3. OBJECTIVES OF THE CBNP:

3.1 To increase the funding to targeted and integrated nutrition projects from 15% to at least 25%;
3.2 To maintain the funding for developmental projects at 40%;

3.3 To provide 40% of the funding to social support programmes operating within specified criteria.

3.4 To ensure community participation and capacity building in 70% of the projects according to defined criteria.

3.5 To monitor implementation and financial controls in all projects three monthly and to evaluate all projects annually.

3.6 To allocate the regional/district budget in accordance with the degree of need.
4. APPLICATION AND FUNDING PROCESS

The allocation committee is responsible for consolidating and distributing funds to the regions/districts.

Funds will be released to the projects from the Provincial Office to approved projects. Appraisal and recommendation of applications/project proposals rests with the regional director and the committees. They are also responsible for support, training and supervision of expenditure and implementation. Funds will be earmarked for capacity building in accordance with the Departmental action plan/decentralising plan.

REGIONAL OFFICE
RECEIVE APPLICATION

\[\downarrow\]

ASSESSMENT BY UNIT

\[\downarrow\]

TO DISTRICT / REGIONAL COMMITTEE FOR RECOMMENDATION

The use of the existing DC with the Section 59 committees will be seen as representative from the district. The practicality of this recommendation is still under investigation.

(ECD officials must be part of the process where crèche applications are considered.)

\[\downarrow\]

TO REGIONAL DIRECTOR FOR RECOMMENDATION
(SEE ATTACHED FORMAT)

\[\downarrow\]

TO ALLOCATION COMMITTEE FOR APPROVAL( acceptance)/NON-APPROVAL (non acceptance)

Provincial office recommendation: 1. That regions are represented on the allocation committee for 97/98
2. That each region establish their own allocation committee for 98/99.
(The provincial office will assist the regions in establishing these committees before October 1997.)

\[\downarrow\]

PROCESSING
5. **FUNDING TIME FRAME FOR 1997**

<table>
<thead>
<tr>
<th>JAN 97</th>
<th>FEB. 97</th>
<th>MARCH 97</th>
<th>APRIL 97</th>
</tr>
</thead>
<tbody>
<tr>
<td>INFORMATION</td>
<td>APPLICATIONS</td>
<td>ASSESSMENTS</td>
<td>RECOMMEND</td>
</tr>
</tbody>
</table>
6. CRITERIA FOR FUNDING FOR CBNP IN 1997/98

6.1 PHILOSOPHY OF CBNP ABOUT FUNDING

The philosophy of the CBNP regarding the funding of projects is that the community must be in charge of financial decisions and funding after clear criteria has been provided to them.

Funding for the CBNP project should address all stages of the programme. The funds for the CBNP should be directed to projects which empower vulnerable communities, targeting mainly women and children, especially those suffering from malnutrition, as beneficiaries and active participants in the projects. The concept of projects which increase communities' access to food, coupled with nutrition education should be marketed during the mobilisation period.

Projects which strive to improve the nutritional status of communities by producing food should be given priority after the completion of an approved PRA. Income generating projects should be linked with nutrition and household food security. Projects which aim at empowering communities towards self reliance should be promoted. E.G. projects which aim to:

* promote household food security;
* promote the development of small scale farming;
* inform and educate women on nutritional aspects e.g. educating women on how to prepare home weaning foods, how to preserve, process and store excess food;
* empower women with basic life skills e.g. budgeting, basic accounting, caring for children, etc.
* educating women on the importance of attending the local clinic to weigh their children, and how to interpret and understand the growth chart.

All these activities should be coupled with nutrition education.

6.2 FUNDING PROCEDURE FOR THE CBNP

* Communities are the key participants and major stakeholders. Active community participation and involvement, including key figures from all sectors and Departments, should be initiated from the beginning in the pre-planning phase.

* Funding is dependent on the availability of an accountable structure as stated in the constitution of the organisation and in the Financial Control Measures (FCM). All NGO's should be a legal entity.
The Memorandum of Agreement and the Financial Control measures should be signed by all the organisations after the implications have been explained to them.

* Departmental Treasury Instructions will be applicable on all projects. Funds will be made available for technical experts (NGO's) to facilitate a PRA process in each district. Activities to be undertaken by the community/project should be mapped and time frames to achieve these must be indicated.

* Project proposals in the form of a business plan/application should be forwarded for Development projects.

* The communities will be trained how to write a proper Business Plan and the staff and allocation committee on how to appraise the Business Plan. The projects will be implemented after initial training of all participants had been completed, and ongoing support and training should be provided.

* Monitoring and evaluation of funds allocated to the project and the progress of a project will be done on a monthly basis by the regions/districts. A monitoring system is to be developed where expenditure will be evaluated against funds allocated to ensure a good cash flow.

### 6.2 FINANCIAL MATTERS:

The allocation committee is responsible for the division of funds to the regions/districts according to set criteria such as the poverty gap. Funds will be released from the Provincial Office to the project once approved.

Appraisal and recommendation of applications/projects rests with the regional director and the committees (Page 6). The Regions and committees are also responsible for support, training and supervision of expenditure and implementation. (Funds will be earmarked for capacity building in accordance with the action plan/decentralising plan.)

- Funding is dependent on the timeous submittance of a properly completed application form - unit staff MUST assist.
- The NGO must endeavour to register in terms of the Fund Raising Act (will enable control between Welfare and other donors)
- Not more than one family member may serve on the executive committee and may have signing power.
- Funding requests must not exceed one financial year at a time.
- Intersectoral collaboration is important to limit duplication of funding and the committee has to declare that no funds are obtained from other donors for the same project.
- They must reflect the targeting procedure and the continuous revision of the recipients.
- Not more than one family member may receive a honorarium.
- The honoraria may not exceed R500.00 per month (within the given budget) and must be accompanied by a job description and a monthly time sheet.
- Interest accrued must be paid back to the Department of Health.
- No funding for development project unless an approved PRA process have been completed with the assistance of line Departments.
- No advance moneys can be issued unless the signatories to the account have attended a training session by the UNIT.

There is still a great need to build the capacity of the NGO's on financial management. This will be done by the Chief Community Liaison Officers with the assistance of the regional staff before funds are released and will include:

* basic bookkeeping;
* accessing of funds (completing of application forms and writing of business plan);
* procurement procedures;
* financial reporting;
* planning and management of projects.
* evaluation

Funds and support for these capacity building sessions will come from the Provincial Budget.
7. **FUNDING TO SPECIFIC TARGET GROUPS:**

7.1 **TARGETED INTERVENTIONS:**

**FUNDING TO CRÈCHES OR OTHER CHILD CARE FACILITIES**

<table>
<thead>
<tr>
<th>CRITERIA/NORMS</th>
<th>OTHER RELEVANT FACTORS</th>
<th>FINANCING POLICY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Provide direct assistance to pre-schools in the community that is <strong>not</strong> registered with the Department of Welfare (and therefore not in receipt of a subsidy or awaiting a subsidy. The type and size of the community, e.g. deprived/developing must be clearly spelt out in the application..</td>
<td>Existing and non registered approved services, including day mothers/child minders are taken into account. <strong>All crèches must submit a health certificate from the local authority.</strong></td>
<td>All funding is subject to the availability of funds. The approved daily allowance per child may be not be exceeded.</td>
</tr>
<tr>
<td>The extent of community support or demand for the service must be proved in the form of a parent/teacher committee.</td>
<td>Individual crèche's must attend training sessions provided by ECD/Welfare/Nutrition at least four (4) times per year to improve the standard of care otherwise funding will be stopped.</td>
<td>Crèche feeding will be increased from 50c per child per day to 75c per child per day. Administration money for travelling and registration where applicable will be considered within the maximum allowance of 10%.</td>
</tr>
<tr>
<td>The broad community must be involved and nutrition education must be provided.</td>
<td>The syllabus and content to be approved by the Department of Health, Nutrition Sub-Directorate.</td>
<td></td>
</tr>
<tr>
<td><strong>TARGET GROUP</strong></td>
<td>The nature, number and needs of the target group within the community are taken into account when the application is considered to ensure the maximum care per child. Parents must show some form of counter performance in the form of attending training sessions arranged by various Departments (AIDS, STD's).</td>
<td>Direct assistance is only available to individual needy children and only for a maximum of six months. Parents must complete an individual form per child requesting assistance to ensure that there is no duplication of services.</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Children over the age of 1 month and younger that 6 years plus children of parents, single parents/guardians, who are unemployed and children under 6 years who are not at school. (Malnourished or at risk children will receive special consideration) The parents of the children should be involved in Nutrition education and life skills training.</td>
<td>Trained staff will assist with growth monitoring and linkages to clinics.</td>
<td>Applications with motivations for scales to do growth monitoring will be considered and will be considered as capital expenditure. These scales remain the property of the Department of Health for five years and should be returned if it's not used or when funding is stopped.</td>
</tr>
<tr>
<td><strong>EVALUATION</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>The crèche must show that it has the potential to achieve positive results: * the need must be justified by providing a name list with the income statements of the parents with the application; * community participation must be shown regarding a functioning committee; * the willingness to upgrade the service must be proven; * proof of attendance of workshops provided by Welfare, Education and Health (the attached form must be completed and submitted to the Department of Health with the monthly returns; * a proposal/action plan as to show how the lessons learnt at the workshops will be implemented; * linkages with clinics to ensure regular growth monitoring or to implement a crèche based growth monitoring programme.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SERVICE</td>
<td></td>
<td></td>
</tr>
<tr>
<td>------------------</td>
<td></td>
<td></td>
</tr>
<tr>
<td>The application will be evaluated against the following objective of the Nutrition programme:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* To provide nutritious food to the pre-school children in need;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* to promote health and the physical, emotional and social well-being and functioning of pre-school children;</td>
<td></td>
<td></td>
</tr>
<tr>
<td>* to enhance the quality of life of children and their families.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Types of services:</th>
</tr>
</thead>
<tbody>
<tr>
<td>* Daily balanced meal.</td>
</tr>
<tr>
<td>* Nutrition education provided by an approved NGO/resource person/department.</td>
</tr>
<tr>
<td>* Stimulation, learning and creative activities.</td>
</tr>
<tr>
<td>* Growth monitoring; and</td>
</tr>
<tr>
<td>* Life skills.</td>
</tr>
</tbody>
</table>

| The application must fall within the scope of the organisations constitution. If the umbrella crèche organisation applies on behalf of the particular crèche, they must submit an application form from the crèche stating their intention to participate in the CBNP within the given framework. |
| Children must attend this crèche for at least five (5) hours per day. A daily attendance register must be kept. The crèche must endeavour to register with the Department of Welfare within 6 months and must submit a letter from the Department of Welfare stating their efforts in this regard. The crèche owner/teachers must attend at least 4 training sessions offered with Line function departments e.g. ECD, Welfare, Health during the year and must submit a letter to verify this. |

| Applications from Umbrella crèche organisations will be accepted for 97/98 BUT in 98/99 all crèches must apply separately. All Umbrella organisations must submit an action plan regarding their plan to develop crèches. No funding can be considered without this. It is envisaged that contracts with suppliers will be arranged for delivery in 98/99 where crèches can obtain their provisions form (Food voucher system). |
## EXPENDITURE

Only prescribed food items may be purchased. All other items will be rejected for payment. Crèche feeding increase from 50c to 75c.

Counter performance will be expected from crèche:
Funding is dependent on the timeous submission of a properly completed application form - unit staff MUST assist.
The crèche must obtain food from a registered supplier after three quotations had been invited. The cheapest quotations has to be accepted by the committee, otherwise a full motivation has to be submitted to the committee for a decision. As a control measure the 3 quotations must be submitted with the minutes of the meeting where the quotation was accepted with the motivation as to the decision. New quotation must be invited every 3 (three) months. Growth monitoring will be strongly recommended and will be to the advantage of the particular crèche.

No advance moneys can be issued unless the signatories to the account have attended a training session by the UNIT.

The Financial control measures must be signed in full with the application.

Administration money for travelling and registration at workshops - where applicable will be considered within the allowance of 10% of the expenditure.

## INCOME

All parents are expected to pay the fees according to their abilities and must submit an income statement if they cannot pay the fees.

An income statement must be submitted monthly by the crèche (see attached).

Future planning by the crèche regarding registration and therefor the upgrading of the facilities should form part of the application.

Other donors must be revealed immediately upon agreement to fund a portion of the project.

Financing may be adjusted according to the income/contribution of the parents.
## 7.2 NON-TARGETED INTERVENTIONS (food parcels/soup kitchens)

<table>
<thead>
<tr>
<th>CRITERIA/NORMS</th>
<th>OTHER RELEVANT FACTORS</th>
<th>FINANCING POLICY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>NEED/PROBLEM</strong></td>
<td>Existing and new NGO's may apply for funds. They must show the extent of community support for the service by way of the beneficiary list and linkages to the clinic/schools and other NGO's.</td>
<td>The approved monthly food parcel price may not be adjusted by any NGO.</td>
</tr>
<tr>
<td>The NGO must be situated in a specific district of Gauteng. It must deliver a service to needy people living within the boundaries of the district and not across districts. ONLY NGO'S SITUATED AT LOCAL(district) LEVEL WILL BE FUNDED: Umbrella organisation may assist but must have a local committee that are the recipients of the funds. All NGO's must submit a proper completed application form with a constitution and a letter stating that the constitution is still valid and applicable.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


TARGET GROUPS

Only unemployed people and their families may apply for funding. Children living with grandparents (pensioners) and whose parents are unemployed may be assisted.

The target group must relate logically to the need/problem being addressed (use situation analysis/community profile)

The application for food parcels shall be accompanied by the following documents:
* Identity documents of birth certificate;
* proof of lack of income
* proof of untraceability of parents;
* proof that the applicant is not receiving any assistance e.g. grants/pensions

The food parcels will total not more than R42.00 per person per month and no family may receive more than 4 food parcels per month. Soup kitchens: remain R1.00 per person per meal.
The NGO must obtain food from a supplier that is registered for VAT after the submission of 3 quotations and the minutes of the meeting where the quotation was accepted with motivation. All quotation must be accepted with motivation. All quotation must be reviewed every 3 (three) months.

Funding is not obligatory, and no organisation may promise any assistance to any person/persons without the written approval of the Department of Health.
NO organisation can receive an allocation of more than R250 000 per year for this service.
Moneys are paid to the NGO's directly through an advance and reimbursement of expenditure.
No advance can be issued if the previous financial years funds are not cleared.
An audited statement must be submitted in accordance with the Financial Control measures.
NO CREDIT IS ALLOWED AND THE DEPARTMENT IS NOT OBLIGED TO REFUND THESE DEBTS.
## BUILDING AND STRUCTURES

The project must be accessible and suitable to meet the needs of the beneficiaries (e.g. walking distance)

The Project must comply with the accepted standards set by the Local Authority.
Must be situated in the community.
Must be linked to Clinics and welfare services in the direct community to ensure linkages and referrals.
No project may be run from a private home.

No funds from the Department of Health will be available/allowed for the upgrading/maintenance of the facilities of the NGO.
The NGO's initiative in this regard will be an indication of the counter performance from the NGO to improve the service rendering.

## SERVICE

The aims of the programme must link with the INP objectives which are appropriate in respect of the need/problem and the target group.

A register of all beneficiaries must be kept.
All applicants must be reviewed after three months and only after a home visit may they receive assistance for another two months after which the person must be removed from the programme.

Type of services:
* Food parcels / Soup Kitchen
* Life skills training
* Nutrition Education

The Department of Welfare must be invited to address beneficiaries at least twice a year to inform them of the service provided by the Department of Welfare.
Beneficiaries must be referred to the PRA in the specific district to ensure that they participate in an appropriate development programme.
<table>
<thead>
<tr>
<th>EXPENDITURE</th>
</tr>
</thead>
<tbody>
<tr>
<td>The project must enhance the objectives of the CBNP and fit into one of the categories of funding: direct assistance.</td>
</tr>
</tbody>
</table>

| |
| No funding will be effected until all advances have been cleared - the track record of the NGO has to be taken into consideration at the allocation of funds. |
| A Cheque account has to be opened in the name of the NGO. |
| Admin costs may not exceed 10% of the approved amount and counter performance from the NGO in this aspect is vital. |
ANNEXURE B

Circular 22/1991:

The State Subsidised Scheme for the Combating of Protein-Energy Malnutrition
STATE SUBSIDISED SCHEME FOR THE COMBATING OF PROTEIN-ENERGY MALNUTRITION

Attached, circular 3 of 1991 from the Director-General regarding the above mentioned matter.

1. As you will notice on pages 9 and 11 in the attached circular, there are two different schemes, i.e.

- THE PVM/SKIM- MILKPOWDER/FULL-CREAM MILKPOWDER SCHEME

- The Dairy Services Organisation

2. You are requested to submit a financial estimate for one year as to the requirements for the community in your area, regarding the PVM/SKIM-MILKPOWDER/FULL-CREAM MILKPOWDER SCHEME. The estimate must reach this office by 25 July 1991.

3. Attached to the circular, is a return form. The return form must be submitted to the Director-General (address on return form) as well as this Regional Office, quarterly.

Yours faithfully

REGIONAL DIRECTOR
DEPARTMENT OF NATIONAL HEALTH AND POPULATION DEVELOPMENT
SOUTHERN TRANSVAAL
TO: ALL REGIONAL OFFICES AND LOCAL AUTHORITIES IN THE REPUBLIC OF SOUTH AFRICA

CIRCULAR NO 3 OF 1991

STATE SUBSIDISED SCHEME FOR THE COMBATING OF PROTEIN-ENERGY MALNUTRITION

1. PROTEIN-ENERGY MALNUTRITION

The two extremes of protein-energy malnutrition (PEM), namely Kwashiorkor and Marasmus can be summarized as follows:

KWASHIORKOR

Age: Between ages of 1 to 3 years. Average age of 2 years.

Cause: Associated with post-weaning diet containing adequate amounts of energy, but insufficient protein.

MARASMUS

Age: Under 1 year of age.

Cause: Associated with inadequate feeding after early weaning (Diet low in energy)
**KWASHIORKOR**  
Start: Frequently has a rapid or acute start. Can be precipitated by acute infections like measles or gastroenteritis.

Clinical signs: Retarded growth. Underweight (60 to 80% of standard). Weight loss hidden by oedema (puffy look). Oedema present. Reduced appetite. Vomiting, diarrhoea. Skin pigmentation. Hair changes are common: red or grey colour, thin, straight and dull. Irritable, apathic. Liver enlargement as a result of fatty infiltration.

**MARASMUS**  
Start: Chronic, progressive development, following chronic inadequate intake of food.


Malnutrition is one of the greatest health problems in South Africa. Protein-energy malnutrition (PEM) is a term that includes a wide variety of protein- and energy deficiency states:

```
PEM

PROTEIN DEFICIENCY

* KWASHIORKOR

ENERGY DEFICIENCY

* MARASMIC KWASHIORKOR
* NUTRITIONAL DWARF
* UNDERWEIGHT
* MARASMUS
```
PELLAGRA

Pellagra is also a form of malnutrition that occurs in South Africa, although it is more common among adults than children. It is caused by a niacin (a B-vitamin) deficiency. Signs of pellagra include:

- Dermatosis: erythema (redness of the skin) is symmetrically distributed on the parts of the body exposed to direct sunlight.
- Diarrhoea.
- Dementia (madness) may occur in the advanced stage.
- The patient is often nauseous and has increased salivation. The mouth is sore and red and the tongue is sore and swollen. The patients are weak and have tremors. They are irritable and depressed.

In treating and preventing pellagra, education is aimed at the inclusion of foods rich in niacin to the diet, such as economical protein rich foods like dry beans, peanuts and peanut butter. These complement the staple food, namely maize meal. Enriched maize meal also contains niacin, and is therefore preferable to non-enriched maize meal. Protein-vitamin-mineral mixture (PVM) is also suitable to be added to the staple diet.

OTHER VITAMIN DEFICIENCIES

Children can also suffer from other vitamin deficiencies and it is important to identify and treat these condition(s) before permanent damage occurs. A summary of different vitamin deficiencies is given but it is important to remember that all deficiency signs are not always clearly visible. A thorough examination must be done where one consciously looks for signs of vitamin deficiency symptoms. Through experience one is able to identify deficiency signs long before the serious disease develops.

The SIGNS OF VITAMIN DEFICIENCIES are summarized on the following two pages.
<table>
<thead>
<tr>
<th>AREA</th>
<th>SIGNS ASSOCIATED WITH MALNUTRITION</th>
<th>POSSIBLE NUTRIENT DEFICIENCY / DISEASE</th>
</tr>
</thead>
</table>
| HAMDS | - nails: Spoon shaped, brittle, ridged  
|       | Small haemorrhages under nails  
|       | - skin: Skin lesions on areas exposed to sun  
|       | Small haemorrhages under skin  
|       | | Vitamin C |
|       | - Muscle wasting  | Pellagra, PPD |
| ARMS and ELBOW | - Skin lesions  
|       | Fat deposits under skin (Xanthomas)  
|       | Dryness (Xerosis)  
|       | Follicular hyperkeratosis (skin feels like sandpaper)  
|       | Enlarged wrists  
|       | Small skin haemorrhages (Petechiae)  
|       | Excessive bruising  
|       | Muscle wasting  | Pellagra, PPD |
| HEAD | - hair: Thin, sparse, straight, flag sign, pulls out easily, colour changes  | Kwashiorkor |
|       | - face: Pallor with cyanosis  
|       | Skin lesions and pigmentation  
|       | Oedema, moon face  
|       | Frontal and parietal bossing of skull  
|       | Nasolabial seborrhoea (scaling of skin around nostrils)  | Pellagra, niacin |
|       | - eyes: Conjunctiva: pale  
|       | - red membranes  
|       | Softening of the cornea: Vitamin A (Keratomalacia)  
|       | - dryness (xerosis)  
|       | - Bitot's spots  
|       | - redness and fissuring of eyelid corners  
|       | - Small haemorrhages  | Vitamin K |
|       | - Cornea: dull (xerosis)  
|       | - Vein crosses cornea (visible)  
|       | - Small yellowish lumps  | Hyperlipidaemia |
|       | - mouth: Lips: white/pink lesions at corners of mouth (Angular stomatitis)  
|       | - Redness and swelling of: Riboflavine lips and mouth-chellose:  
|       | - tongue: - sore and burning  
|       | - Magenta (purplish)  
|       | - Scarlet, raw, swollen and smooth tongue  
|       | - Papillae atrophy or hypertrophy  
|       | - Smooth and beefy red  
<p>|       | - Sore, smooth tongue  | Vitamin B12 |
|       | - Gums: Swollen, bleeding, red  | Vitamin C |
|       | - Teeth: Delayed dentation  | Vitamin D |</p>
<table>
<thead>
<tr>
<th>AREA</th>
<th>SIGNS ASSOCIATED WITH MALNUTRITION</th>
<th>POSSIBLE NUTRIENT DEFICIENCY / DISEASE</th>
</tr>
</thead>
<tbody>
<tr>
<td>NECK</td>
<td>Thyroid enlargement (goitre)</td>
<td>Iodine</td>
</tr>
<tr>
<td></td>
<td>Skin lesions (Casals necklace)</td>
<td>Niacin, pellagra</td>
</tr>
<tr>
<td>CHEST</td>
<td>Ribs enlarge at ends:</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Rachitic rosary, thoracic rosary</td>
<td>Vitamin D</td>
</tr>
<tr>
<td></td>
<td>- Scorbic rosary</td>
<td>Vitamin C</td>
</tr>
<tr>
<td></td>
<td>- Pigeon breast</td>
<td>Vitamin D</td>
</tr>
<tr>
<td>ABDOMEN</td>
<td>Ascitis, pot-belly</td>
<td>Vitamin D</td>
</tr>
<tr>
<td></td>
<td>Small haemorrhages under skin</td>
<td>Vitamin C</td>
</tr>
<tr>
<td></td>
<td>Excessive bruising</td>
<td>Vitamin K</td>
</tr>
<tr>
<td>LEGS</td>
<td>Muscle tenderness and weakness</td>
<td>Thiamin, vitamin E, vitamin A, vitamin C</td>
</tr>
<tr>
<td></td>
<td>Pins and needles sensation</td>
<td>Thiamin, niacin, selenium</td>
</tr>
<tr>
<td></td>
<td>Sore wrists with colour changes</td>
<td>Vitamin C</td>
</tr>
<tr>
<td></td>
<td>Oedema</td>
<td>PEM</td>
</tr>
<tr>
<td></td>
<td>Follicular hyperkeratosis (skin feels like sandpaper), xerosis</td>
<td>Vitamin A</td>
</tr>
<tr>
<td></td>
<td>Skin lesions on areas exposed to sun</td>
<td>Niacin, pellagra</td>
</tr>
<tr>
<td></td>
<td>Small haemorrhages under skin</td>
<td>Vitamin C</td>
</tr>
<tr>
<td></td>
<td>Enlargement of ends of bones</td>
<td>Vitamin D</td>
</tr>
<tr>
<td></td>
<td>Bow legs or knock knees (rickets)</td>
<td>Vitamin D</td>
</tr>
<tr>
<td>OTHER</td>
<td>Cardiac enlargement</td>
<td>Thiamin</td>
</tr>
<tr>
<td></td>
<td>Mental confusion</td>
<td>Niacin, thiamin</td>
</tr>
</tbody>
</table>
2. CLASSIFICATION OF PROTEIN-ENERGY MALNUTRITION

2.1. The Growth chart

It is impossible to judge whether a child is growing normally or not, by just looking at him. The growth chart is indispensable for the determination of normal growth. When the growth chart is regularly followed up, deviations from normal growth can quickly be detected and treated. It must be remembered that there are children who are smaller and thinner than others of the same age and this does not necessarily mean that they suffer from PEM. Variations in the normal growth pattern indicate that there may be a problem which requires further attention. This example is illustrated in Figure 1.

![NORMAL GROWTH vs PATIENT AT RISK](image)

Figure 1. Difference between normal growth and a patient at risk

2.2. Classification

There are different classifications, but for the purpose of this scheme it has been decided to use the NCHS growth curve (1977).

The different degrees of PEM are given for boys and girls. This table should be used when completing the quarterly returns. The correct weight for age is therefore very important.

It can thus be seen that a kwashiorkor case does not always fall within the third degree PEM. For example: a 5-year old boy weighs 13 kg. He will therefore fall within the 2nd degree of PEM. If his weight was 13.1 kg he would fall within the 1st degree of PEM. His initial weight (at the start of his treatment) determines the degree of PEM. This is important to remember when completing the quarterly return form.
NCHS Growth curves (1977) for boys (6 months to 6 years) in kilograms

<table>
<thead>
<tr>
<th>AGE</th>
<th>STANDARD</th>
<th>1st Degree PFM</th>
<th>2nd Degree PFM</th>
<th>3rd Degree PFM</th>
<th>STANDARD</th>
<th>1st Degree PFM</th>
<th>2nd Degree PFM</th>
<th>3rd Degree PFM</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>10,2</td>
<td>7,1-8,2</td>
<td>6,1-7,1</td>
<td>&lt; 6,1</td>
<td>3</td>
<td>10,4</td>
<td>7,3-8,3</td>
<td>6,2-7,3</td>
</tr>
<tr>
<td>1</td>
<td>10,4</td>
<td>7,3-8,3</td>
<td>6,2-7,3</td>
<td>&lt; 6,2</td>
<td>3</td>
<td>11</td>
<td>7,9-8,9</td>
<td>6,7-7,8</td>
</tr>
<tr>
<td>2</td>
<td>10,7</td>
<td>7,5-8,6</td>
<td>6,4-7,5</td>
<td>&lt; 6,4</td>
<td>4</td>
<td>10,9</td>
<td>7,8-8,9</td>
<td>6,7-7,8</td>
</tr>
<tr>
<td>3</td>
<td>10,9</td>
<td>7,6-8,7</td>
<td>6,5-7,6</td>
<td>&lt; 6,5</td>
<td>4</td>
<td>11,1</td>
<td>7,7-8,9</td>
<td>7,7-8,9</td>
</tr>
<tr>
<td>4</td>
<td>11,1</td>
<td>7,8-9,0</td>
<td>7,7-8,9</td>
<td>&lt; 7,7</td>
<td>4</td>
<td>2</td>
<td>17,0</td>
<td>11,9-12,6</td>
</tr>
<tr>
<td>5</td>
<td>11,3</td>
<td>7,9-9,0</td>
<td>8,8-7,9</td>
<td>&lt; 8,8</td>
<td>4</td>
<td>3</td>
<td>17,2</td>
<td>12,0-12,8</td>
</tr>
<tr>
<td>6</td>
<td>11,5</td>
<td>8,1-9,2</td>
<td>8,9-9,1</td>
<td>&lt; 8,9</td>
<td>4</td>
<td>4</td>
<td>17,4</td>
<td>12,2-13,9</td>
</tr>
<tr>
<td>7</td>
<td>11,7</td>
<td>8,2-9,4</td>
<td>9,0-9,2</td>
<td>&lt; 9,0</td>
<td>4</td>
<td>5</td>
<td>17,5</td>
<td>12,3-14,0</td>
</tr>
<tr>
<td>8</td>
<td>11,8</td>
<td>8,3-9,5</td>
<td>9,1-9,3</td>
<td>&lt; 9,1</td>
<td>4</td>
<td>6</td>
<td>17,7</td>
<td>12,4-14,2</td>
</tr>
<tr>
<td>9</td>
<td>12,0</td>
<td>8,4-9,6</td>
<td>9,3-9,4</td>
<td>&lt; 9,3</td>
<td>4</td>
<td>7</td>
<td>17,9</td>
<td>12,5-14,3</td>
</tr>
<tr>
<td>10</td>
<td>12,2</td>
<td>8,5-9,8</td>
<td>9,3-9,5</td>
<td>&lt; 9,3</td>
<td>4</td>
<td>8</td>
<td>18,0</td>
<td>12,6-14,4</td>
</tr>
<tr>
<td>11</td>
<td>12,3</td>
<td>8,6-9,9</td>
<td>9,4-9,6</td>
<td>&lt; 9,4</td>
<td>4</td>
<td>9</td>
<td>18,2</td>
<td>12,7-14,6</td>
</tr>
<tr>
<td>0</td>
<td>12,4</td>
<td>8,7-9,9</td>
<td>9,4-9,7</td>
<td>&lt; 7,4</td>
<td>4</td>
<td>10</td>
<td>18,3</td>
<td>13,0-14,6</td>
</tr>
<tr>
<td>1</td>
<td>12,5</td>
<td>8,8-10,0</td>
<td>9,5-9,5</td>
<td>&lt; 7,5</td>
<td>4</td>
<td>11</td>
<td>18,5</td>
<td>13,0-14,8</td>
</tr>
<tr>
<td>2</td>
<td>12,7</td>
<td>8,9-10,2</td>
<td>9,6-9,6</td>
<td>&lt; 7,6</td>
<td>5</td>
<td>6</td>
<td>18,7</td>
<td>13,1-15,0</td>
</tr>
<tr>
<td>3</td>
<td>12,9</td>
<td>9,0-10,3</td>
<td>9,7-9,7</td>
<td>&lt; 7,7</td>
<td>5</td>
<td>7</td>
<td>18,8</td>
<td>13,2-15,1</td>
</tr>
<tr>
<td>4</td>
<td>13,1</td>
<td>9,1-10,5</td>
<td>9,8-9,8</td>
<td>&lt; 7,9</td>
<td>5</td>
<td>8</td>
<td>19,0</td>
<td>13,3-15,2</td>
</tr>
<tr>
<td>5</td>
<td>13,3</td>
<td>9,2-10,6</td>
<td>10,0-9,9</td>
<td>&lt; 8,0</td>
<td>5</td>
<td>9</td>
<td>19,2</td>
<td>13,4-15,4</td>
</tr>
<tr>
<td>6</td>
<td>13,5</td>
<td>9,4-10,8</td>
<td>10,1-9,4</td>
<td>&lt; 8,1</td>
<td>5</td>
<td>10</td>
<td>19,3</td>
<td>13,5-15,4</td>
</tr>
<tr>
<td>7</td>
<td>13,7</td>
<td>9,6-11,0</td>
<td>10,2-9,6</td>
<td>&lt; 8,2</td>
<td>5</td>
<td>11</td>
<td>19,5</td>
<td>13,6-15,6</td>
</tr>
<tr>
<td>8</td>
<td>13,9</td>
<td>9,8-11,1</td>
<td>10,3-9,7</td>
<td>&lt; 8,3</td>
<td>5</td>
<td>12</td>
<td>19,7</td>
<td>13,8-15,8</td>
</tr>
<tr>
<td>9</td>
<td>14,1</td>
<td>9,9-11,3</td>
<td>10,4-9,9</td>
<td>&lt; 8,5</td>
<td>5</td>
<td>13</td>
<td>19,9</td>
<td>13,9-15,8</td>
</tr>
<tr>
<td>10</td>
<td>14,3</td>
<td>10,0-11,4</td>
<td>10,5-10,0</td>
<td>&lt; 8,6</td>
<td>5</td>
<td>14</td>
<td>20,0</td>
<td>14,0-16,0</td>
</tr>
<tr>
<td>11</td>
<td>14,4</td>
<td>10,1-11,5</td>
<td>10,6-10,1</td>
<td>&lt; 8,6</td>
<td>5</td>
<td>15</td>
<td>20,2</td>
<td>14,1-16,2</td>
</tr>
<tr>
<td>0</td>
<td>14,6</td>
<td>10,2-11,7</td>
<td>10,8-10,2</td>
<td>&lt; 8,8</td>
<td>5</td>
<td>16</td>
<td>20,3</td>
<td>14,2-16,2</td>
</tr>
<tr>
<td>1</td>
<td>14,8</td>
<td>10,4-11,8</td>
<td>10,9-10,4</td>
<td>&lt; 8,9</td>
<td>5</td>
<td>17</td>
<td>20,5</td>
<td>14,4-16,4</td>
</tr>
<tr>
<td>2</td>
<td>15,0</td>
<td>10,5-12,0</td>
<td>10,9-10,5</td>
<td>&lt; 9,0</td>
<td>6</td>
<td>18</td>
<td>20,7</td>
<td>14,5-16,6</td>
</tr>
<tr>
<td>3</td>
<td>15,2</td>
<td>10,6-12,2</td>
<td>10,9-10,6</td>
<td>&lt; 9,1</td>
<td>6</td>
<td>19</td>
<td>20,9</td>
<td>14,6-16,6</td>
</tr>
</tbody>
</table>
### NCHS Growth curves (1977) for girls (6 months to 6 years) in kilograms

<table>
<thead>
<tr>
<th>AGE</th>
<th>STANDARD</th>
<th>:1st Degree PEM :2nd Degree PEM :3rd Degree PEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>7,2</td>
<td>5,9-9,8</td>
</tr>
<tr>
<td>7</td>
<td>7,7</td>
<td>5,4-6,2</td>
</tr>
<tr>
<td>8</td>
<td>8,2</td>
<td>5,7-6,6</td>
</tr>
<tr>
<td>9</td>
<td>8,6</td>
<td>6,0-6,9</td>
</tr>
<tr>
<td>0</td>
<td>8,9</td>
<td>6,2-7,1</td>
</tr>
<tr>
<td>1</td>
<td>9,2</td>
<td>6,4-7,4</td>
</tr>
<tr>
<td>0</td>
<td>9,5</td>
<td>6,6-7,6</td>
</tr>
<tr>
<td>1</td>
<td>9,8</td>
<td>6,9-7,8</td>
</tr>
<tr>
<td>2</td>
<td>10,0</td>
<td>7,0-8,0</td>
</tr>
<tr>
<td>3</td>
<td>10,2</td>
<td>7,1-8,2</td>
</tr>
<tr>
<td>4</td>
<td>10,4</td>
<td>7,3-8,3</td>
</tr>
<tr>
<td>5</td>
<td>10,5</td>
<td>7,4-8,5</td>
</tr>
<tr>
<td>6</td>
<td>10,8</td>
<td>7,6-8,6</td>
</tr>
<tr>
<td>7</td>
<td>11,0</td>
<td>7,7-8,8</td>
</tr>
<tr>
<td>8</td>
<td>11,2</td>
<td>7,8-9,0</td>
</tr>
<tr>
<td>9</td>
<td>11,4</td>
<td>8,0-9,1</td>
</tr>
<tr>
<td>0</td>
<td>11,5</td>
<td>8,1-9,2</td>
</tr>
<tr>
<td>1</td>
<td>11,7</td>
<td>8,2-9,4</td>
</tr>
<tr>
<td>2</td>
<td>11,9</td>
<td>8,4-9,5</td>
</tr>
<tr>
<td>3</td>
<td>12,0</td>
<td>8,5-9,8</td>
</tr>
<tr>
<td>4</td>
<td>12,2</td>
<td>8,7-9,9</td>
</tr>
<tr>
<td>5</td>
<td>12,4</td>
<td>8,9-10,1</td>
</tr>
<tr>
<td>6</td>
<td>12,6</td>
<td>9,1-10,2</td>
</tr>
<tr>
<td>7</td>
<td>12,8</td>
<td>9,3-10,5</td>
</tr>
<tr>
<td>8</td>
<td>13,0</td>
<td>9,5-10,9</td>
</tr>
<tr>
<td>9</td>
<td>13,2</td>
<td>9,7-11,0</td>
</tr>
<tr>
<td>0</td>
<td>13,4</td>
<td>9,9-11,3</td>
</tr>
<tr>
<td>1</td>
<td>13,6</td>
<td>10,1-11,5</td>
</tr>
<tr>
<td>2</td>
<td>13,8</td>
<td>10,3-11,9</td>
</tr>
<tr>
<td>3</td>
<td>14,0</td>
<td>10,5-12,2</td>
</tr>
<tr>
<td>4</td>
<td>14,2</td>
<td>10,7-12,5</td>
</tr>
<tr>
<td>5</td>
<td>14,4</td>
<td>10,9-12,9</td>
</tr>
<tr>
<td>6</td>
<td>14,6</td>
<td>11,1-13,0</td>
</tr>
</tbody>
</table>

---

### Notes

- **STANDARD**: 50th percentile
- **1st Degree PEM**: 10-20th percentile
- **2nd Degree PEM**: 20-30th percentile
- **3rd Degree PEM**: 30-40th percentile

<table>
<thead>
<tr>
<th>AGE</th>
<th>STANDARD</th>
<th>1st Degree PEM</th>
<th>2nd Degree PEM</th>
<th>3rd Degree PEM</th>
</tr>
</thead>
<tbody>
<tr>
<td>6</td>
<td>11,1</td>
<td>10,0-11,8</td>
<td>9,9-10,4</td>
<td>&lt; 8,9</td>
</tr>
<tr>
<td>7</td>
<td>11,7</td>
<td>10,5-12,1</td>
<td>9,1-10,6</td>
<td>&lt; 9,1</td>
</tr>
<tr>
<td>8</td>
<td>12,2</td>
<td>11,0-12,6</td>
<td>9,2-10,8</td>
<td>&lt; 9,2</td>
</tr>
<tr>
<td>9</td>
<td>12,8</td>
<td>11,6-13,2</td>
<td>9,3-10,9</td>
<td>&lt; 9,3</td>
</tr>
<tr>
<td>0</td>
<td>13,3</td>
<td>11,8-13,4</td>
<td>9,4-11,0</td>
<td>&lt; 9,4</td>
</tr>
<tr>
<td>1</td>
<td>13,9</td>
<td>12,0-13,8</td>
<td>9,5-11,2</td>
<td>&lt; 9,5</td>
</tr>
<tr>
<td>2</td>
<td>14,5</td>
<td>12,6-14,4</td>
<td>9,6-11,4</td>
<td>&lt; 9,6</td>
</tr>
<tr>
<td>3</td>
<td>15,1</td>
<td>13,2-15,0</td>
<td>9,7-11,6</td>
<td>&lt; 9,7</td>
</tr>
<tr>
<td>4</td>
<td>15,7</td>
<td>13,8-15,6</td>
<td>9,8-11,8</td>
<td>&lt; 9,8</td>
</tr>
<tr>
<td>5</td>
<td>16,3</td>
<td>14,4-16,2</td>
<td>9,9-12,0</td>
<td>&lt; 9,9</td>
</tr>
<tr>
<td>6</td>
<td>16,9</td>
<td>15,0-16,8</td>
<td>10,0-12,2</td>
<td>&lt; 10,0</td>
</tr>
<tr>
<td>7</td>
<td>17,5</td>
<td>15,6-17,4</td>
<td>10,1-12,4</td>
<td>&lt; 10,1</td>
</tr>
<tr>
<td>8</td>
<td>18,1</td>
<td>16,2-18,0</td>
<td>10,2-12,6</td>
<td>&lt; 10,2</td>
</tr>
<tr>
<td>9</td>
<td>18,7</td>
<td>16,8-18,6</td>
<td>10,3-12,8</td>
<td>&lt; 10,3</td>
</tr>
<tr>
<td>0</td>
<td>19,3</td>
<td>17,4-19,2</td>
<td>10,4-13,0</td>
<td>&lt; 10,4</td>
</tr>
<tr>
<td>1</td>
<td>19,9</td>
<td>18,1-19,9</td>
<td>10,5-13,2</td>
<td>&lt; 10,5</td>
</tr>
<tr>
<td>2</td>
<td>20,5</td>
<td>18,8-20,7</td>
<td>10,6-13,4</td>
<td>&lt; 10,6</td>
</tr>
<tr>
<td>3</td>
<td>21,1</td>
<td>19,6-21,5</td>
<td>10,7-13,6</td>
<td>&lt; 10,7</td>
</tr>
<tr>
<td>4</td>
<td>21,7</td>
<td>20,3-21,4</td>
<td>10,8-13,8</td>
<td>&lt; 10,8</td>
</tr>
<tr>
<td>5</td>
<td>22,3</td>
<td>21,1-22,2</td>
<td>10,9-14,0</td>
<td>&lt; 10,9</td>
</tr>
<tr>
<td>6</td>
<td>22,9</td>
<td>21,9-23,0</td>
<td>11,0-14,2</td>
<td>&lt; 11,0</td>
</tr>
<tr>
<td>7</td>
<td>23,5</td>
<td>22,7-23,8</td>
<td>11,1-14,4</td>
<td>&lt; 11,1</td>
</tr>
<tr>
<td>8</td>
<td>24,1</td>
<td>23,5-24,6</td>
<td>11,2-14,6</td>
<td>&lt; 11,2</td>
</tr>
<tr>
<td>9</td>
<td>24,7</td>
<td>24,3-25,4</td>
<td>11,3-14,8</td>
<td>&lt; 11,3</td>
</tr>
<tr>
<td>0</td>
<td>25,3</td>
<td>25,1-26,2</td>
<td>11,4-15,0</td>
<td>&lt; 11,4</td>
</tr>
<tr>
<td>1</td>
<td>25,9</td>
<td>26,0-27,0</td>
<td>11,5-15,2</td>
<td>&lt; 11,5</td>
</tr>
<tr>
<td>2</td>
<td>26,5</td>
<td>26,9-28,0</td>
<td>11,6-15,4</td>
<td>&lt; 11,6</td>
</tr>
<tr>
<td>3</td>
<td>27,1</td>
<td>27,8-29,0</td>
<td>11,7-15,6</td>
<td>&lt; 11,7</td>
</tr>
</tbody>
</table>
3. THE PREVENTION OF PEM COMPRISSES THE FOLLOWING:

3.1. Early identification

* Regular visits to the clinic / child's home.
* Keep growth charts up to date and check progress.
* Be aware of the signs of PEM as well as factors that could lead to PEM.
* Early intervention when PEM is diagnosed.

3.2. Education

* Intensive nutrition education to avoid repetition of PEM after treatment.
* Motivate mothers to continue breastfeeding as long as possible.
* Educate mothers about correct weaning procedures.
* Stress the following:
  * good eating habits,
  * family planning and spacing of children.
  * hygiene and prevention of infections.
  * immunization.
  * optimum use of resources.
  * giving a diet adequate in energy and good quality proteins.

The PVM / powdered milk scheme is only a temporary measure to combat PEM. NUTRITION EDUCATION is vital to solve the problem!

4. THE PVM / SKIM-MILKPowDER OR FULL-CREAM MILKPOwDER SCHEME

4.1. The purpose of the scheme

The purpose of the skim milkpowder (SMP), the full-cream milkpowder (FCMP) and the protein-vitamin-mineral mixture (PVM) scheme is to:

* identify children that are at risk of developing PEM in good time and to treat them;
* treat pre-school children, of all ethnic groups (between 6 months and 6 years of age) who suffer from PEM;
* identify and treat children (between 6 months and 6 years) who have vitamin deficiencies; and to
* develop a effective monitoring system regarding the health status of the population.
This scheme does not include:
* Children under the age of 6 months and over the age of 6 years,
* Tuberculosis cases,
* The aged,
* Family members of pre-school children,
* Families with a low income.

4.2. Functioning of the scheme

In an effort to combat and treat PEM, the Department of National Health and Population Development, each year, makes funds available to regional offices and local authorities, such as municipalities, divisional councils and peri-urban councils for the purpose of subsidizing the cost of the SMP, FCMP and PVM completely (100%).

The local authorities are then able to provide these products to mothers of pre-school children suffering from PEM, free of charge. The amount budgeted for this assistance is adjusted from time to time to meet rising prices and demand. Each region receives an annual allocation.

The local authority must apply to the Regional Director to participate in this scheme. The local authority is required to estimate annually (in advance) the amount of money they will require from the Regional Office. Personnel of the Regional Office will then decide on the amount of money to be allocated to the participating authority. This amount is then used to subsidize the purchase of SMP, FCMP and/or PVM by the local authority.

The local authority buys SMP, FCMP and PVM directly from the supplier at the full price. After the account has been fully settled, a completed claim form accompanied by certified proof of payment, is forwarded to the Regional Office who then pays a subsidy of 100% for the purchases, until the allocated funds have been exhausted.

Under no circumstances may local authorities:
* exceed the allocated amount, or
* use these funds to purchase other products such as breast-milk substitutes (S26, Nan, Isomil etc.) or other food supplements such as Complan, Ensure, etc.
The Dairy Services Organisation (DSO) also budgets annually to subsidize SMP purchases by local authorities. This subsidy is solely for the purchasing of SMP. FCMP and PVM are not included. Officers of the regional Office decide how much of the allotted funds will go to a local authority.

The DSO budgets in advance for each financial year which runs from from 1 March until 28 February. They are therefore not able to refund late claims from the previous financial year from moneys available in the current financial year. However the following concession is granted: all claims for the purchasing of SMP from the previous financial year (thus until 28 February) which reach the DSO not later than 31 March of the following financial year, will still qualify for a subsidy payment. Claims from the previous financial year which reach the DSO later than 31 March will under no circumstances be paid out. This six week extension period should be regarded as a concession and your full co-operation in this respect will be appreciated.

4.3. The relevant products

4.3.1. Skim-milkpowder (SMP)

SMP provides as much protein and calcium as full-cream milk, but contains very little fat and therefore less energy. Children receiving SMP will require additional vitamin and mineral supplementation.

A 500 gram packet is issued weekly for a period of 12 weeks or longer, if necessary. This means that the child should receive about 70 grams (9 slightly heaped tablespoons) SMP per day.

The daily ration must be divided according to the number of meals (eg. 3 slightly heaped tablespoons three times per day). The amount of SMP for one meal can be stirred into just enough porridge that the child can manage at a time or can be mixed with one cup of cooled, boiled water and served with the porridge. The SMP will be wasted if the recommended amount is mixed with too much porridge, which the child may not finish.

Since the energy content of SMP is low it should rather be given with a high energy food like maize-meal porridge. This will ensure that the child gets enough energy as well as good quality protein.
It is very important to remember that the malnourished child should get the SMP and not the other members of the family (e.g. in their tea or coffee).

4.3.2. Full-cream milkpowder (FCMP)

FCMP is preferable for children between 6 months and 1 year because the energy content is higher. The child will, however require additional vitamins (especially the water-soluble kind such as vitamin C and the B-complex) and also minerals.

The directions for use are the same as those for SMP. Again it must be stressed that the malnourished child should receive the FCMP and not other family members.

4.3.3. Protein-Vitamin-Mineral Mixture (PVM)

PVM is rich in protein, vitamins and minerals but is low in fat and carbohydrates and therefore energy. PVM is given preference because it already contains added vitamins and minerals. It is also less likely that other members of the family will use it and therefore only the malnourished child will use it.

The formula of PVM was developed and tested by the CSIR. It is used to complement a diet consisting mainly of an energy-rich staple food such as maize-meal porridge. PVM is manufactured from soybean flour, fish meal, egg powder and FCMP. Extra vitamins and minerals have been added.

A 500 gram packet is issued every 2 to 3 weeks until the child has recovered. The child should get 30 grams (4 heaped teaspoons) PVM per day which is also divided amongst the meals per day, for example 2 heaped teaspoons with breakfast and one heaped teaspoon with lunch as well as supper. It should be mixed with the amount of porridge that the child can manage at a time. Mothers should be discouraged from mixing the PVM in water and giving it to the child like that. The child could take in excessive amounts that way. A child receiving PVM does not require additional vitamins or minerals.

PVM has a shelf life of six months.
It is very important that mothers are taught how to use the products effectively. She must be shown how to mix the powder with just enough porridge for the child to finish. She must know that she should do this with each meal (i.e. divide the child's ration equally between meals each day). Only the malnourished child may use the products. They are definitely NOT for the whole family to use.

4.4. Monitoring

Your co-operation is urgently required to enable this Department to:

- measure the effectiveness of this scheme, and to
- determine the health status of the population.

This Department relies on the information from regional offices and local authorities in compiling statistically significant data. Currently returns are not received from all the participating authorities. The returns are also done on an irregular basis and different return forms are used.

The return form has been revised and made less complicated (see attached example). In future this form only needs to be returned on a quarterly basis and not monthly as was the practice before. All previous return forms will thus be replaced by the attached example.

**Explanation of the new return form**

- Only fill in the number of children treated by the scheme and not the number of children seen at the clinic.
- Only children are treated by means of this scheme. Adults are therefore excluded and not mentioned in the return form.
- The NCHS standards (as shown in this circular) are used to determine the degree of PEM the child has.
- The amount of SMP, FCHP and/or PVH used per quarter can be given in kilograms or in the amount of 500 gram packets issued.
- The return form is now returned quarterly. Please indicate the relevant quarter clearly.
- Every patient treated is counted once per treatment period. For example: if the child starts with his treatment in September he is counted in the July-September quarter, but not again in the October-December quarter since he is only continuing the treatment. If his treatment period is extended the same arrangement will apply. However, if he returns later for a new treatment period, he will again be counted.
You are requested to participate in the scheme if it is at all possible. Any enquiries can be directed to this office or to the relevant Regional Office at the following address:

The Regional Director
Department of National Health and Population Development

1. WESTERN CAPE REGION: Private Bag X19
   BELLVILLE
   7530

2. EASTERN CAPE REGION: Private Bag X6013
   PORT ELIZABETH
   6000

3. NORTHERN CAPE REGION: Private Bag X5023
   KIMBERLEY
   8300

4. SOUTHERN TRANSVAAL REGION: P.O. Box 8623
   JOHANNESBURG
   2000

5. NORTHERN TRANSVAAL REGION: Private Bag X9302
   PIETERSBURG
   0700

6. NATAL REGION: Private Bag X54318
   DURBAN
   4000

7. O.F.S. REGION: P.O. Box 441
   BLOEMFONTEIN
   9300

This circular replaces all previous circulars concerning the state subsidised scheme for the combating of protein-energy malnutrition.

DIRECTOR-GENERAL : NATIONAL HEALTH AND POPULATION DEVELOPMENT
ANNEXURE C

Questionnaire
Questionnaire

Annexure C

Purpose of the study
To determine the causes of malnutrition in the age group one to four years in the Tshwane Township and why the Preterm Energy Malnutrition (PEM) programme is not always successful in combating malnutrition.

Information given at the beginning of the interview
1. Please answer all the questions honestly.
2. No names will be filled in on the questionnaire.
3. All information will be treated confidentially and anonymously.
4. Only group results will be reported.

1 Demographic details of the mothers of toddlers
1.1 What is your age in years?

1.2 What is your marital status?
- Married = 1
- Single = 2
- Divorced = 3
- Widowed = 4

1.3 What is the total number of people living with you in your household?

1.4 Indicate the number of toddlers in the age group 1 to 4 years living with you in your household.

1.5 What is the age difference in months between your two (2) youngest children?

1.6 Do you have your own accommodation?
- Yes = 1
- No = 2
1.6.1 If yes, give a description of accommodation.

<table>
<thead>
<tr>
<th>Description</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brick house</td>
<td>1</td>
</tr>
<tr>
<td>Flat</td>
<td>2</td>
</tr>
<tr>
<td>Shack</td>
<td>3</td>
</tr>
</tbody>
</table>

1.7 Indicate the number of bedrooms.

<table>
<thead>
<tr>
<th>Number</th>
<th></th>
</tr>
</thead>
</table>

1.8 Do you have a separate kitchen?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
</table>

1.9 If you do not have own accommodation, who do you live with

<table>
<thead>
<tr>
<th>Accommodation Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Family</td>
<td>1</td>
</tr>
<tr>
<td>Friends</td>
<td>2</td>
</tr>
<tr>
<td>Renting</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

1.9.1 If other, please specify ...........................................

1.10 Where do you get your water from?

<table>
<thead>
<tr>
<th>Source</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Household tap</td>
<td>1</td>
</tr>
<tr>
<td>Communal tap</td>
<td>2</td>
</tr>
<tr>
<td>Tank</td>
<td>3</td>
</tr>
<tr>
<td>Borehole</td>
<td>4</td>
</tr>
</tbody>
</table>

1.10.1 If not from household tap, how do you store your water?

<table>
<thead>
<tr>
<th>Storage Method</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bucket with lid</td>
<td>1</td>
</tr>
<tr>
<td>Bucket without lid</td>
<td>2</td>
</tr>
<tr>
<td>Jug</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

1.10.2 If other, please specify ...........................................

1.11 What kind of toilet do you have?

<table>
<thead>
<tr>
<th>Toilet Type</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Water-borne sewerage</td>
<td>1</td>
</tr>
<tr>
<td>Chemical</td>
<td>2</td>
</tr>
<tr>
<td>Pit latrine</td>
<td>3</td>
</tr>
<tr>
<td>Other</td>
<td>4</td>
</tr>
</tbody>
</table>

1.11.1 If other, please specify ...........................................
1.12 Do toddlers in the age group 1 to 4 years use this toilet?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>

1.13 If your answer to 1.12 above is no, where do toddlers go for toilet?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pottie</td>
<td>1</td>
</tr>
<tr>
<td>Bush</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

1.13.1 If other, please specify ....................................

1.14 What is your source of energy?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Electricity</td>
<td>1</td>
</tr>
<tr>
<td>Coal stove</td>
<td>2</td>
</tr>
<tr>
<td>Gas stove</td>
<td>3</td>
</tr>
<tr>
<td>Paraffin stove</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>

1.14.1 If other, please specify . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . . .

1.15 Are you currently employed?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>

1.15.1 Indicate average household income per month.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>R0-R100</td>
<td>1</td>
</tr>
<tr>
<td>R200-R300</td>
<td>2</td>
</tr>
<tr>
<td>R300-R500</td>
<td>3</td>
</tr>
<tr>
<td>R600-R900</td>
<td>4</td>
</tr>
<tr>
<td>R1000 and above</td>
<td>5</td>
</tr>
</tbody>
</table>

1.15.2 If no, indicate your source of income.

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Husband</td>
<td>1</td>
</tr>
<tr>
<td>Parents</td>
<td>2</td>
</tr>
<tr>
<td>Relatives</td>
<td>3</td>
</tr>
<tr>
<td>Friends</td>
<td>4</td>
</tr>
<tr>
<td>None</td>
<td>5</td>
</tr>
</tbody>
</table>

1.16 Are you the sole bread winner?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>
1.17 Did you take any alcoholic beverages during pregnancy?

Yes = 1
No = 2

17.1 If yes, how many drinks per day?

1.18 Did you smoke during pregnancy?

Yes = 1
No = 2

1.19 Did you have any complications during pregnancy?

Yes = 1
No = 2

1.19.1 If yes, please specify

1.20 Did you have any complications during labour?

Yes = 1
No = 2

1.20.1 If yes, please specify

1.21 Are there any hereditary conditions in the family?

Yes = 1
No = 2

1.21.1 If yes, please specify

1.22 What is your highest standard of education?

2 Details of toddlers on the PEM Programme

2.1 What is the age of the toddler in months?

2.2 What type of feed does your toddler get?

Breast = 1
Bottle = 2
Both = 3
Other = 4
2.3 At what age were solids introduced to the diet of your toddler?

<table>
<thead>
<tr>
<th>Age</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>0-1 Month</td>
<td>1</td>
</tr>
<tr>
<td>2-3 Months</td>
<td>2</td>
</tr>
<tr>
<td>4-6 Months</td>
<td>3</td>
</tr>
<tr>
<td>7 Months and up</td>
<td>4</td>
</tr>
<tr>
<td>Never</td>
<td>5</td>
</tr>
</tbody>
</table>

2.4 What type of solids were introduced?

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Soft porridge</td>
<td>1</td>
</tr>
<tr>
<td>Cereal</td>
<td>2</td>
</tr>
<tr>
<td>Purity</td>
<td>3</td>
</tr>
<tr>
<td>Vegetables</td>
<td>4</td>
</tr>
<tr>
<td>Other</td>
<td>5</td>
</tr>
</tbody>
</table>

2.4.1 If other, please specify ....................................

2.5 How is the cereal/soft porridge given to the toddler?

<table>
<thead>
<tr>
<th>Method</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Spoon</td>
<td>1</td>
</tr>
<tr>
<td>Bottle</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td></td>
</tr>
</tbody>
</table>

2.5.1 If other, please specify ....................................

2.6 How many times per day does your toddler get solids?

<table>
<thead>
<tr>
<th>Frequency</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Once</td>
<td>1</td>
</tr>
<tr>
<td>Twice</td>
<td>2</td>
</tr>
<tr>
<td>Other</td>
<td>3</td>
</tr>
</tbody>
</table>

2.6.1 If other, please specify ....................................

2.7 Is your toddler currently breastfeeding?

<table>
<thead>
<tr>
<th>Answer</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>1</td>
</tr>
<tr>
<td>No</td>
<td>2</td>
</tr>
</tbody>
</table>

2.7.1 If no, at what age in months was your toddler weaned off the breast? 42-43

2.8 Was the weaning

<table>
<thead>
<tr>
<th>Type</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gradual</td>
<td>1</td>
</tr>
<tr>
<td>Abrupt</td>
<td>2</td>
</tr>
<tr>
<td>Not applicable</td>
<td>3</td>
</tr>
</tbody>
</table>
2.9 If weaning was abrupt, indicate the specific method of weaning used.

Cayenne pepper = 1
Separation = 2
Other = 3

2.9 If other, please specify ........................................

2.10 Who normally looks after your toddler?

Self
Grandparents
Childminder/crièche
Siblings
Other

2.10.1 If other, please specify ........................................

2.11 If toddler is at crièche/childminder, how many children are there?

2.11.1 What diet is given to your toddler for:

Breakfast

Soft porridge = 1
Cereal = 2
Bread & tea/milk = 3
Unknown = 4

Lunch

Pap & mince = 1
Vegetables & mince = 2
Unknown = 3

Afternoon

Fruit = 1
Juice = 2
Milk/tea = 3
Unknown = 4

2.12 What was the birth weight of your toddler in kg?

OFFICE USE ONLY

45
46
47-48
49
50
51
52-53
2.13 Was your toddler

- Full-term = 1
- Premature = 2

2.14 If the answer to 2.13 is premature, was your toddler hospitalised?

- Yes = 1
- No = 2

2.14.1 If yes, for what period in days?

2.15 Did your toddler have any congenital abnormalities?

- Yes = 1
- No = 2

2.15.1 If yes, please specify .....................................

2.16 Is your toddler allergic to any food?

- Yes = 1
- No = 2

2.16.1 If yes, please specify .....................................

2.17 Did your toddler have diarrhoea in the last three months?

- Yes = 1
- No = 2

2.18 Was your toddler ever admitted to hospital?

- Yes = 1
- No = 2

2.18.1 If yes, please specify the reason/s for admission .....................................

2.19 At what age in months did your toddler commence the PEM Programme?

2.20 For how long in months has your toddler been on the PEM Programme?
2.21 How often do you get PEM supplementary feeding from the clinic?

- Fortnightly = 1
- Monthly = 2
- Other = 3

2.22 Are the other children in the family also being fed from the same PEM supplementary feed?

- Yes = 1
- No = 2

2.23 Does your toddler get any other diet besides the PEM supplementary feeding?

- Yes = 1
- No = 2

2.23.1 If yes, please specify

2.24 At each visit to the clinic, is your toddler's weight improving?

- Yes = 1
- No = 2

2.24.1 If no, what do you think is the reason for your toddler not gaining weight?

2.25 Were there any weight problems with your other children (siblings)?

- Yes = 1
- No = 2

2.25.1 If yes, please specify

3 Knowledge of the PEM Programme by the mothers of toddlers

3.1 Were you told at the clinic why your toddler had to be on the PEM Programme?

- Yes = 1
- No = 2

3.1.1 If yes, did you understand why it is necessary for your toddler to be on the PEM Programme?

- Yes = 1
- No = 2
3.2 Do you take your toddler to the clinic fortnightly for weighing?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.2.1 If no, give reason/s

3.3 Was the road to health chart with regard to your toddler's weight fully explained to you?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.4 Did you experience problems with the preparation of the PEM supplementary feed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.4.1 If yes, specify the problems

3.5 Were you advised on what to do if your toddler had problems with the PEM supplementary feed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.6 Did you understand why the PEM supplementary feed was recomended for your toddler?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.6.1 If yes, please explain

3.7 Did you change the PEM supplementary feed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.7.1 If yes, what milk feed is your toddler getting?

<table>
<thead>
<tr>
<th>Full cream</th>
<th>Skim</th>
<th>Fat free</th>
<th>Low fat</th>
<th>Other formula</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
</tbody>
</table>
3.8 At each visit to the clinic, did the nurses ask whether you were still using the PEM supplementary feed?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.9 In your opinion, has this PEM supplementary feed helped your toddler?

<table>
<thead>
<tr>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

3.9.1 Give reasons for your answer

4 Mothers’ satisfaction scale on the services provided

Listed below are a number of statements which can be used to describe the health care at the clinic.

**Key**

- Strongly agree = A
- Agree = B
- Neutral = C
- Disagree = D
- Strongly disagree = E

4.1 Assessment of clinic services

4.1.1 Within walking distance.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.2 Available at suitable times for me.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.3 Waiting times short.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

4.1.4 Frequency of visits reasonable.

<table>
<thead>
<tr>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
4.2 Assessment of services offered by nurses

4.2.1 Friendly and approachable.

A B C D E

4.2.2 Encouraging and supportive.

A B C D E

4.2.3 Explained the PEM Programme clearly.

A B C D E

4.2.4 Let's me know what the expected weight should be.

A B C D E

4.2.5 Demonstrated good knowledge of the PEM Programme.

A B C D E

4.2.6 Gave clear instructions.

A B C D E

4.2.7 Listened to my problems.

A B C D E

4.3 Assessment of PEM Programme

4.3.1 Helpful.

A B C D E

4.3.2 PEM supplementary feed necessary?

A B C D E

Thank you for participating in the study.
ANNEXURE D

Request for permission

(Transitional Local Council of Boksburg)
Chief: Health Services
P O Box 215
BOKSBURG
1460

Sir

REQUEST FOR PERMISSION TO CONDUCT A RESEARCH ON MALNUTRITION IN THE VOSLOORUS TOWNSHIP

I hereby request permission to conduct research (collection of data) on malnutrition in the Vosloorus Clinics.

I am currently registered with the University of S.A. for a MA (Cur) degree. My research topic is "Toddler Malnutrition and the Protein-Energy malnutrition (PEM) Programme in the Vosloorus Township".

The purpose of the study is to determine the cause of malnutrition in the age group 1-4 years in the Vosloorus Township and why the PEM programme of the Department of Health is not always successful in combating malnutrition.

The objectives of the study are to:

i) Determine the weaning practices of the child suffering from malnutrition in the age group 1-4 years in the Vosloorus Township.

ii) Determine the type of diet given to the child suffering from malnutrition in the age group 1-4 years.

iii) Determine factors within the family that could give rise to malnutrition.

iv) Determine the extent to which the mother of a child suffering from malnutrition understands the implementation of the PEM Programme.
Research into the problem of toddler malnutrition in the Vosloorus Township could benefit both the Health Services and the community. Once the causes of malnutrition amongst the age group 1-4 years are known and why the PEM Programme fails in combating malnutrition, special preventive and promotive health education programmes could be developed to address the problem of malnutrition at the Clinics and in the community and to improve the nutritional status of children as well as the entire community.

I therefore wish to:

i) Inform Council of my intention to conduct research in the Vosloorus Township.

ii) Request permission to collect data at the Poly Clinic, Extension 14 Clinic and Extension 28 Clinic in Vosloorus.

iii) Inform Council that I will take time from my accumulated leave to collect the data at the three (3) clinics during working hours and that data collected will be treated as strictly confidential and will be reported anonymously.

iv) Request Council's permission to make use of the computer system for printing and graphical presentation of data. The amount of computer time cannot be accurately estimated.

v) Undertake to make available to the Council a copy of my dissertation once complete.

I trust that my request will be considered favourably.

Yours faithfully

S E NKONDE (MS)
DEPUTY CHIEF: HEALTH SERVICES

COMMENT FROM THE CHIEF: HEALTH SERVICES

The request is supported. Permission is granted, departmentally.

A D ANDREWS (DR)
CHIEF: HEALTH SERVICES