EVALUATION OF A DECENTRALISED PRIMARY HEALTH CARE TRAINING PROGRAMME

by

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Summary

A quantitative, descriptive, explorative design was used to evaluate a decentralised primary health care training programme at a training unit in the Limpopo Province. The study sought to determine to what extent the newly qualified diplomates were able to manage patients appropriately when faced with the realities, such as the shortage of personnel, large numbers of patients, shortage of resources and time constraints in the real situation without the support and guidance from medical practitioners and senior nursing personnel. Data were collected by observing the diplomates as they managed patients with hypertension by making use of checklists. The diplomates were also interviewed by making use of an in interview schedule. The major inferences drawn from this study was that these diplomates were competent in the management of these patients and were satisfied with their abilities and training.

KEY TERMS:

Decentralised training programme, evaluation of clinical competencies, primary health care, observation, checklist, physical examination, differential diagnosis, diagnosis, treatment, health education, hypertension.

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Dedication

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ABBREVIATIONS

PHC	Primary Health Care
PHCN	Primary Health Care Nurse
UNISA	University of South Africa
WHO	World Health Organisation

CHAPTER 1

ORIENTATION AND OVERVIEW OF RESEARCH

1.1 INTRODUCTION

Significant health problems in Africa and other developing countries, which could have been prevented by the timely interventions of a qualified health professional, was the rationale for the development of the philosophy of Primary Health Care (PHC) by the World Health Organization (WHO). The philosophy of PHC consists of eight elements or components. One of these elements, of this global strategy, involves the rendering of primary curative or primary medical care which includes the assessment of the patient, the diagnosis of the condition and the prescribing of the appropriate treatment for the patient. Traditionally this service is rendered by medical practitioners on a daily basis (Dennill, King & Swanepoel 1999:2).

There is, however, a shortage of medical practitioners *per se* as well as medical practitioners who are willing to work in the most remote areas of most of the developing countries of the world as well as in Southern Africa in particular.

With the shortage of medical practitioners in PHC in the rural areas of South Africa, registered nurses are trained by many hospitals, nursing colleges and Universities to fill this gap. One such training programme has been running in the Limpopo province since 1981. This PHC training programme has undergone many changes since its implementation --- three changes which have been perceived by some professionals as not well thought through. It is believed, that by decentralising the practical training, the experiential learning will be inferior to the previous training programmes where the experiential learning was under direct control of the training institution. Another reason for not believing that the training programme is effective is that none of the training programmes have been evaluated in the past for its effectiveness, but still the decision was made to decentralise the training programme.

The evaluation of the decentralised training programme is therefore important to ensure that

- its outcomes have been attained
- the registered nurses are effective enough to practise as independent PHC practitioners in the rural areas of the Limpopo province
- it contributes to the decrease in morbidity and mortality rates of members of the communities and in this way help to alleviate the unnecessary suffering of our people

Three phases encompass the process of evaluation of a training programme, namely (1) the evaluation of the planning of the programme, (2) the evaluation of the implementation of the programme, (3) the effectiveness and success of the programme (Mateo & Kirchhoff 1999:91). The latter evaluation process have been studied in this research to evaluate the extent to which the summative outcomes of the decentralised training programme which prepare PHC nurses to assess, diagnose and treat patients in the PHC setting without the assistance of a medical practitioner, have been attained. This will be discussed in more detail in chapter 2.

This chapter provides an overview of inter *alia* the aim and objectives of the research, the research questions, as well as the methodology that has been followed to collect data, analyse and report the findings.

The overview of the research has been introduced by giving a short discussion of the background of this research problem.

1.2 BACKGROUND OF THIS RESEARCH

Primary Health Care has been designed to lower the morbidity and mortality rates of communities particularly in rural areas of developing countries by rendering effective health care to these communities (Evian 1998:112).

In 1978 the Alma Ata declaration regarding PHC was accepted internationally as a strategy to improve the health status of communities, particularly those living in developing countries. The developing countries in Africa, for instance, were strained by poor environmental conditions, high morbidity and mortality rates of communicable and waterborne diseases as well as nutritional problems. The women (particularly the pregnant women) children and older individuals were the most vulnerable groups. At this meeting at Alma Ata in Geneva, the principles of PHC were formulated to combat these preventable conditions and many countries, including South Africa, adopted this strategy in an attempt to improve the health status of communities at a cost the countries could afford and with the available resources (WHO 1978:428-430).

In most rural areas in Africa, as in South Africa, there are not enough medical practitioners to render health care, or they are not willing to work in the remote rural areas. For this reason nurses in South Africa have been specifically trained to fill the gap to curb the mortality and morbidity rates and unnecessary suffering of members of these communities (Evian 1998:112).

The South African Nursing Council (SANC) has designed a training programme to train registered nurses to take a comprehensive history of the patient's health, to conduct physical examinations, diagnose diseases and treat patients appropriately and effectively. The first approved training programme for PHC has been implemented in Soweto clinics. Other health institutions followed and subsequently started to train their own registered nurses (Evian 1998:112).

Nursing training institutions in South Africa (SA) base their PHC training courses on the curriculum designed by the SANC contained in regulation R48 of 1982, as amended, of the Diploma in Clinical Nursing Science, Health Assessment, Treatment and Care. Training institutions often adapt this curriculum to suit their particular needs. These training programmes are then approved by the SANC and the trained nurses are registered with this qualification with the SANC.

The training programme being researched in this study has changed three times.

- The first curriculum was designed and the programme implemented in 1981 at the local Tintswalo hospital in collaboration with the University of the Witwatersrand as an one year full time training programme.
- This hospital then changed the curriculum as they designed their own programme which was approved by the SANC for one year full time training programme *in Clinical Nursing Science, Health Assessment, Treatment and Care* only.
- In 1993 this training programme was changed into a 18 month full time course with the integration of Community Health Nursing Science as an additional qualification.
- In 1998 the training programme changed for the third time into a decentralised one year course training programme. The training programme was then taken over by the provincial authorities from Tintswalo and the collaboration with the University of the Witwatersrand was discontinued.
- It is now being offered by the provincial authorities in an attempt to train more PHC nurses to address the great need for PHC services in the Limpopo province.

A problem that could develop from the adaptation or changing of the curriculum without the proper research is that the training programme could become less effective and nurses become less competent which then would cause wasting of human and material resources and that no impact could be made on the mortality and morbidity rates of diseases in these communities.

A problem that has been anticipated by the researcher and her colleagues is related to the decrease of control of the practical experience (experiential learning) by the lecturers at the nursing school. During their training the PHC trainees spend 50% of their time at the training school and 50% of their time at their local health institutions, which is called the *home module*. The general feeling amongst the lecturers of this programme is that there is less support and quality supervision from preceptors or trained PHC nurses in their relative health institutions due to shortage of these professionals in the province, which then made the training programme less effective.

Any training programme needs to be evaluated from time to time (Mateo & Kirshoff 1999: 98). This training programme in particular needed to be evaluated, not only because of the suspected unsubstantiated changes made in each of the three curricula, but also because the qualified PHC nurse is an important key person in the improvement of the health status of the community as well as in saving patients' lives and limited resources. As this is a big responsibility placed on their shoulders they should be evaluated regularly.

The researcher was of the opinion that this training programme would be considered to be effective if the newly qualified diplomates were able to demonstrate that they have attained the summative outcomes of the training programme not only in a laboratory type situation, but in the real life situation found in the rural clinics. This should be done independently, without the assistance and support of a medical practitioner or senior members of personnel.

Although formative evaluation is done during the training programme and the students need to pass their theoretical and practical examination (summative evaluation) before they qualify, the question is, how effective was their training during the *home module* (which the nursing school does not control) and did their training prepare them sufficiently when *confronted* by real health problems presented at the PHC clinic on a daily basis?

The rationale of the study has been outlined in the next discussion.

1.3 RATIONALE OF THE RESEARCH PROBLEM

It was on the basis of the following discussion that the research problem was selected:

- Primary Health Care was designed to lower the morbidity and mortality rates of the communities particularly in the rural areas of developing countries by rendering effective health care to these communities.
- Although PHC has been designed to be rendered also by lay community members, South Africa extended the training of registered nurses to render the curative aspects of PHC which were normally rendered by medical practitioners

- PHC trained nurses should be fully competent/effective to render PHC services, where there are no medical practitioners available to render this care.
- Effective PHC services therefore will imply that PHC practitioners have been effectively trained and are able to manage patients appropriately, namely by *inter alia* taking a full medical history, conducting a physical examination, making correct diagnosis, treating patients correctly, and in this way preventing complications and identifying and preventing diseases early before a serious condition develops.
- The Limpopo provincial authorities of South Africa has been training registered nurses to render PHC for many years, students were evaluated during their training programme at the nursing school according to the set outcomes of the programme and need to pass their theoretical and practical examination before they qualify.
- The curriculum has changed and is now offered through a system of decentralised training which diminishes the training institution's control over the practical training of the students.
- Lecturers at the training institution have been questioning this system and expressed their concern about the quality guidance the trainees receive in the health services to develop into competent independent PHC practitioners.
- The effectiveness of the decentralised training programme offered in the Limpopo province therefore needs to be evaluated.
- The most appropriate way this could be done is to determine to what extent the newly registered PHC nurses are capable of managing patients appropriately when faced with the realities of the PHC practice and to determine whether they themselves feel confident about their training and abilities to substitute the medical practitioner.

1.4 STATEMENT OF THE PROBLEM

The effectiveness of the one year decentralised PHC training programme in the Limpopo province of South Africa has never been evaluated although it has changed three times. The effectiveness of this training programme can be determined by evaluating to what extent the outcomes of the one year decentralised training programme has been attained when the trained practitioners are confronted by the realities of the problems on a daily

basis without the assistance of a medical practitioner or other senior personnel. No proof could be found that this training programme has ever been researched as no findings of such research could be located.

The question that could be asked therefore is how effective are the diplomates of the one year decentralised training programme in PHC in managing the care of a patient?

From this problem statement the following research questions were derived.

1.4.1 The research questions

The research questions which directed the research process were the following:

How effective was the training of the diplomates of the one year decentralised training programme which could be **demonstrated** to what extent they have attained the summative outcomes of this training programme? Would they also be competent when confronted with conditions in the real situation without the support and guidance of trained personnel in the PHC clinic? Could the diplomates execute the following tasks on specially selected patients?

- Obtain the history of a patient?
- Conduct a physical examination on a patient relevant to his/her condition?
- Make a final and correct diagnosis based on the findings of the history and physical examination?
- Prescribe the correct treatment for a patient?
- Know when to refer a patient?
- Write clinical notes correctly?
- Give appropriate health education to a patient?

The following questions were also asked:

- How did the diplomates in PHC experience their training?

- Do they feel confident that they have the necessary knowledge and skills to be able to render an effective PHC service independently?
- What problems have they experienced?

1.5 THE AIM OF THE RESEARCH

The aim of the research was to evaluate the effectiveness of the one year decentralised training programme in PHC in the Limpopo province. Accordingly, the objectives of the study were to:

- determine the effectiveness of the one year decentralised training programme in PHC in the Limpopo province by observing and evaluating the diplomates as they manage a specially selected patient
- obtain the opinion of the diplomates of the one year decentralised training programme in PHC in the Limpopo Province on how they themselves perceived their training
- make recommendations to improve the decentralised training programme
- make recommendations for further research

1.6 SIGNIFICANCE OF THE RESEARCH

It was important to conduct this research as no recorded research could be found on the effectiveness of the one year decentralised training programme in PHC in the Limpopo province of South Africa. Findings of the research could be used to improve the decentralised training programme and ultimately offer effective PHC services to the patients in this province.

1.7 OPERATIONAL DEFINITIONS

Concepts relevant to this research included the following:

- **Evaluation**

According to *Longman Dictionary* (1998:347) *evaluation* is to calculate or judge the value or degree of something, or to form an idea of the amount, number or value thereof or to assess (*Concise Oxford Dictionary* 1999:493).

In this research the term *evaluation* refers to the process whereby the effectiveness of the training programme for PHC nurses in the evaluation of the decentralised PHC training programme in the Limpopo province of South Africa has been judged. This is done by summative evaluation, to determine to what extent the outcomes of the training programme have been attained. The evaluation was done by observing the diplomates of this programme after they have completed the programme and have been faced with the realities of the real situation in PHC clinics. The diplomates were evaluated while they managed specially selected patients.

- **Decentralised**

According to *Longman Dictionary of Contemporary English* (1998:265) *decentralised* is the move of a government or business from one central place or office to several different smaller homes.

According to the *Concise Oxford Dictionary* (1999:371) *decentralised* is seen as the transfer of authority from central to local government, or to disperse or divide a large organisation into smaller separate units.

In this research the term *decentralised* is seen as the moving of some of the PHC training programmes from the training school who has the ultimate authority, power and responsibility for the clinical training programme to the (local) mother institutions of the PHC students during their *home module* or during their clinical exposure (experiential learning period) in their respective health institutions.

- **Primary Health Care**

According to the excerpt from the Alma Ata Declaration (WHO 1978:428), Primary Health Care can broadly be defined as the essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in communities through their full participation and at a cost that the community and country can afford to maintain at every stage of their development in the spirit of self reliance and self determination. PHC should form an integral part of the country‘s national health system. It is also is seen as the preventive, promotive, curative and rehabilitative care provided at the first level of contact with the patients (WHO 1978:428).

In this research *Primary Health Care* is also seen as the preventive, promotive, curative and rehabilitative care provided at the first level of contact with the patients by specially trained PHC nurses, with the emphasis on curative care. This care entails the appropriate assessment and effective management of the patient by the PHC nurse, independent of the continuous presence of a medical practitioner.

- **Training programme**

According to the *Mosby Medical and Nursing Dictionary* (2002:1402) *training programme* is a basic level of health care training that includes programmes directed at the promotion of health, early diagnosis of disease or disability, and the prevention of diseases. It is provided to the number of people often living in a particular geographical area.

In this research the term *training programme* is seen as the decentralised training programme training registered nurses for a further one year in clinical management, community, managerial, and educational training in curative PHC to make her/him competent in executing her/his role in Primary Health Care and which leads to registration as a PHC nurse with the SANC according to Regulation R48.

- **Management of patients**

According to *Longman Dictionary* (1998:636) *management of patients* is the controlling and dealing with diseases or disorders or the care of patients who suffers them, or it is the treatment or control of diseases (*Concise Dictionary* 1999:864).

In this research the concept *management of patients* refers to the taking of the full history of a patient, deducting differential diagnosis from the history, conducting of a physical examination, making the correct diagnosis, prescribing of treatment, rendering emergency services, giving health education, doing proper referrals, writing clinical notes and the following-up of patients.

1.8 RESEARCH METHODOLOGY

A quantitative, explorative, descriptive, contextual research design was used to investigate the effectiveness of the one year decentralised training programme in PHC.

1.8.1 Quantitative research

The quantitative paradigm was considered to be more suitable as the researcher made use of a structured checklist which offered more control of the variables. (Mateo & Kirchhoff 1999:93). Quantitative research is normative and measures objective data (Polit, Beck & Hungler 2001:195).

This research measured the effectiveness of the one year decentralised training in the Limpopo province by determining the *extent* to which the diplomates of the one year decentralised training in PHC have attained the summative outcomes of the training programme when confronted by the real situation in the clinics --- to what extent were they able to manage a specially selected patient appropriately? The quantitative research method was deemed the most appropriate to measure the effectiveness as a measure was allocated to each variable.

The quantitative method as applied in this research has been discussed in more detail in chapter 3.

1.8.2 Explorative research

Explorative research explores an unknown phenomenon and studies it in order to answer the research question (Brink 1996:109). It also examines the relationships between (or causes of) phenomena (Mateo & Kirchhoff 1999:221).

In this research effectiveness of the one year decentralised training in PHC in the Limpopo province has been explored as no record could be found of any evaluation of this programme in the past.

1.8.3 Descriptive research

The main objective of descriptive research is to accurately portray the characteristics of persons, situations, or groups and/or the frequency with which certain phenomena occur (Polit et al 2001:460).

When a phenomenon is studied it must be discussed to enable other readers to study the research findings and apply it to benefit the community. In this research the findings of the research on the effectiveness of the decentralised training programme in the Limpopo province will be described and recommendations made to improve the training of the diplomates, it is found to be necessary.

1.8.4 Contextual design

A contextual design focuses on the context of the study which could be a certain time period, geographical area and or specific phenomenon (Newman 1997:331).

This research is contextual in nature as it is executed within the context of the one year decentralised PHC training of registered nurses in the Limpopo Province only.

This section will be discussed in more detail in chapter 3.

An overview of programme evaluation which is used as the conceptual framework of this research has been discussed below.

1.8.5 Conceptual framework of the research

The value of conceptual frameworks is that it directs attention to the specific phenomena of interest and focuses attention on particular types of relationships. In this research the effectiveness of an educational programme has been evaluated.

There are three distinct phases that encompass the process of programme evaluation, namely programme planning, programme implementation and programme success. The first two stages are evaluated by formative evaluation, whereas the third stage is evaluated by means of summative evaluation. Summative evaluation focuses on measuring the general effectiveness or success of the educational programme. Formative and summative evaluation can be subdivided into two further phases, namely *process* versus *outcome* evaluation. As this **dissertation is of limited scope**, the researcher only evaluated whether the intended clinical outcomes of the educational programme have been attained (Mateo & Kirchhoff 1999:91).

The outcomes of the one year decentralised training in the Limpopo province for PHC nurses as well as the outcomes required by the SANC regulation 48 have been used as conceptual framework for this research. These outcomes have been used as research questions and research objectives. This has been discussed in more detail in chapter 2 and chapter 3.

1.8.6 Research population

In this study the **research population** is made up of 60 PHC diplomates of the one year decentralised PHC training who have completed their training. These students recently qualified as PHC nurses and are from the 6 districts of the Limpopo province.

In chapter 3 the criteria for selecting the participants has been discussed in more detail.

1.8.7 Sampling method

A stratified sampling method has been used to select the participants from the one year decentralised PHC training in the Limpopo province. The researcher used her own judgment in selecting the participants that were representative of the phenomenon studied.

This method has been discussed in chapter 3 in more detail.

1.8.7.1 The sample size

Twelve participants (sample) from a total of 60 students (research population) who were trained through the one year decentralised training in PHC were chosen to take part in the research. Two participants from each of the six districts of the Limpopo province were selected, which formed 20% of the research population.

1.8.8 Data collection approach

Data were collected by making use of the observational method and a structured checklist. The outcomes of the decentralised PHC training programme were measured by observing PHC nurses managing pre-selected patients who visited health institutions to be monitored for hypertension (Polit & Hungler 1999:428). The researcher and a medical practitioner observed and evaluated the participants while they managed these patients, using a prepared checklist. A medical practitioner was used as co-researcher to ensure validity and reliability of the research process and findings. The researcher was of the opinion that a medical practitioner would be the best person to judge whether the diplomates were competent enough to substitute a medical practitioner.

One of the research instruments used during the observation was a structured checklist where the outcomes of the decentralised PHC training programme were listed and ticked off by the researcher and medical practitioner.

Data were also collected from the participants during a personal interview held with each of the diplomates and making use of an interview schedule. This was done to determine how they themselves felt about the decentralised training programme and whether they felt confident enough that the training programme had prepared them well enough to stand in for a medical practitioner.

The research instruments and how they have been compiled, tested and used are discussed in more detail in chapter 3.

1.8.9 Analysis of data

Data analysis was done through coding of the checklist and interview schedule after the data was collected. Analysis was then done by computer with a SPSS programme. The findings have been presented in tables, pie diagrams and graphs.

This has been discussed in more detail in chapter 3 and chapter 4.

1.9 RELIABILITY AND VALIDITY OF THE RESEARCH

Research findings are worthless unless it could be proved that the processes that have been applied were reliable and valid. The research instruments were tested for reliability and validity.

1.9.1 Reliability

The reliability of an instrument is the *degree of consistency* with which it measures the attribute it is supposed to measure (Polit & Hungler 1999:411). According to Fain (2004:128) reliability refers to the consistency with which an instrument or test measures whatever it is supposed to measure. There are many methods in which the effectiveness of a training programme can be evaluated. In this research only the clinical summative outcomes of the training programme as outlined in the research questions and objectives have been tested.

A research instrument (checklist) was obtained from another training institution who also train PHC practitioners in a decentralised manner and who designed it for this type of evaluation. This evaluation instrument has been tested a number of years in this institution. Literature has also been consulted and the research instrument was adapted for this research by making minor changes. The literature and experts in the field have been consulted to determine whether the instrument would be suitable and reliable and would facilitate the evaluation process to determine to what extent the clinical summative outcomes of the one year decentralised training programme for PHC nurses have been attained. The short interview schedule was designed to obtain the biographical data of the participants and it also included some questions pertaining their personal views on the decentralised training programme.

1.9.2 Validity

Validity refers to the degree to which an instrument measures what it is supposed to be measuring (Polit & Hungler 1999:418). According to Fain (2004:131) validity *is the accuracy with which an instrument or test measures what it is supposed to measure.*

The research instruments in this research, that is the checklist and a short questionnaire have been tested for face value and content validity, by consulting experts in the field of research and clinical evaluation. The checklist has been pre-tested. This has been discussed in more detail in chapter 3.

The checklist has been used by another training institution and is therefore believed to be accurate enough to measure to what extent the students were effective in executing a number of predetermined summative outcomes of the training programme. The checklist had been found to be valid for the particular purpose of measuring the effectiveness of the PHC diplomates in managing patients with hypertension. The objective of the short interview schedule was only to obtain biographical data and other information of the participant and also included one open-ended question in which the participants could express their own personal views regarding their training.

Reliability and validity has been discussed in more detail in chapter 3.

1.10 AN OVERVIEW OF THE ETHICAL CONSIDERATIONS

Certain steps were taken to ensure that the research was conducted in an ethical manner.

Permission was asked from the Department of Health of the Limpopo province's Ethics committee, the training institutions, the clinics and hospitals where the participants were working, the participants themselves as well as the patients who were managed by the participants (see annexure C). Chapters 1, 2 and 3 as well as the checklist were also presented to the Ethical Committee of the Department of Health Studies, University of South Africa (Unisa) for approval.

Approval was received from the above organisations (see annexure D).

During the research special considerations with regard to the ethical aspects were given due to the sensitive nature of the research. The rights of the participant to self – determination were also respected without penalty or prejudicial treatment.

The researcher ensured that no participant or patient would be subjected to any physical, emotional, spiritual, economical, social or legal harm or any treatment withheld from them.

The privacy of the participant, patient and institutions involved was ensured by not sharing any of the collected information with others. All data gathered were kept confidential until permission could be obtained by the participants and authorities to make it known.

An informed consent was obtained from each participant and patient in the research project (see annexures D & E).

The ethical principles applied to this research have been discussed in more detail in chapter 3.

1.11 CHAPTER LAYOUT

This research report has been divided into the following chapters:

Chapter 2: Literature review
Chapter 3: Research methodology
Chapter 4: Data analysis and literature control
Chapter 5: Summary, limitations, conclusions and recommendations

1.12 SUMMARY OF CHAPTER 1

To curb the high morbidity and mortality rates of unnecessary and preventable illnesses and conditions the WHO came up with the philosophy of PHC which involves eight elements. The focus of this research is on two of these elements, namely the rendering of curative care and the prescribing of essential drugs. Although this task is best done by medical practitioners, they are of short supply in the rural areas of South Africa and in the Limpopo province in particular. For that reason registered nurses are trained to substitute them when they are not available.

The problem is however, how effective are they in doing what they are supposed to do? How effective were their decentralised training without the control of the training institution and could they cope when they were no longer in a protected environment with the medical practitioners and senior personnel at hand to consult? The focus of this research was therefore to evaluate the effectiveness of the training programme by observing the diplomates of the one year decentralised training programme in the Limpopo province of South Africa while they managed (according to the summative outcomes of the programme) a specially selected patient (with hypertension).

In this chapter the background of the research, rationale, objectives and research questions, as well as the conceptual framework was briefly outlined. An overview was also given on the design and method that was used to collect data and how reliability and validity of the findings was ensured.

An overview was also given on the ethical aspects considered in this research.

In the next chapter a literature review relevant to the research problem and other relevant topics is given.

CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

In chapter 1 an outline was given of the study which was undertaken, the background of the problem, as well as *inter alia* the rationale for the study; objectives and research questions that the researcher wished to answer.

The current approach to deliver health care in the public sector of South Africa is through the PHC system. This approach has resulted in the implementation of the district health system, which is the vehicle of PHC. This change to PHC from the previous health care system exerted a major impact on service delivery. Primary Health Care is supposed to be comprehensive, coordinated, accessible and equitable to all (Goel 2001c:44-46; Van Rensburg 2004:420).

The PHC philosophy required a change from a hospital disease-based model to a clinic/community health centre based model, in which the professional nurses play a leading role in the assessment and management of the patient needs (Van Rensburg 2004:413). The only way to achieve these functions is for them to be appropriately prepared through education and be trained as PHC nurses (Greathead 1999:1). The question however is how good the nurse professionals are trained, and are they indeed capable of substituting medical practitioners who are in short supply in the remote rural and impoverished urban areas of South Africa?

A review of the literature suggests that the evaluation of training programmes is frequently a neglected misunderstood aspect of service programme planning (Mateo & Kirchhoff 1999:90). The authors recognised the fact that the viability and impact of existing training programmes are often questioned and that many lives and scarce resources could be

saved with a systematic and scientific needs assessment and evaluation of the training programmes.

In this research the literature relevant to the problem has been discussed. Various sources were used for gathering the relevant literature. Literature was retrieved from library and from the Internet. Unisa's subject librarians consulted the following reports relevant to evaluation of the decentralised PHC care training programme:

- Computerised Index to Nursing and Allied Health Literature(INAHL)
- Oasis Unisa library
- Reference to South African materials
- Reference to periodical articles
- Magnet search of references for materials in South African libraries
- Social Science and Medicine
- Public Health
- International Nursing Index
- Reports from Health System Trust

National and international reports relevant to the topic were studied to determine what is already known about the topic to be studied so that a comprehensive picture of the state of knowledge on the topic can be obtained. This would save time and avoid duplication and unnecessary repetition of the study (Brink 1996:76; Mouton 2001:87).

2.2 THE HISTORICAL DEVELOPMENT OF PRIMARY HEALTH CARE

During the 1970's health care throughout the world was in turmoil. Certain conditions existed in many countries of the world, not only in the most remote rural areas of developing countries, but also in the impoverished urban areas of developed and developing countries that was detrimental to the health of those communities. This was due to a variety of factors which were not always directly related to the delivery of health care but influenced the health of communities, such as poor sanitation, poor water supply, poor governance, riots and wars (Dennill, King, Swanepoel 1999:2).

In South Africa, Mtwazi (2000:1) describes that there were sharp divisions featured between curative and preventative health care in the Public Health Services before the democratisation process. There was fragmentation in authority structures and inequalities between urban and rural areas as well as along racial lines. This resulted in a situation where there was duplication and inequality in the distribution of resources amongst the different levels of health care which led to costly and inefficient health services.

One such factor was the emphasis on high-tech medicine. In South Africa, as elsewhere in the world, the subdued status of PHC was due to the spectacular rise of modern scientific and high-tech medicine during the 20th century and the casting off of health care into the so-called medical model. This particular approach led to the emphasis on curative health care, doctor-centered, hospital-based and specialised health care delivery system. This caused the most needed preventive and promotive interventions and community-based approaches to be grossly neglected. Communities who were able to pay for this type of health services were generally well served but the poor who needed health services the most, were often left without the most basic health services (Dennill et al 1999:2).

Early signs of the emerging public health problems were the implementation of periodic quarantine and isolation measures, immunisation and inoculation campaigns, notification of certain contagious diseases, and environmental control measures (Van Rensburg 2004:451).

Due to the international sense of despair over the high mortality and morbidity rates especially amongst children and mothers of the nations of the world (due to preventable conditions) an International Conference on Primary Health Care was jointly sponsored by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF). During this conference the PHC philosophy was introduced and endorsed with enthusiasm by the participant nations. It was seen as a means of rendering universally available health care to individuals, families and communities at a cost a country can afford (Dennill et al 1999:2).

Although South Africa was not represented at this meeting, the then National Department of Health followed the strategy to help address the many health issues of that time. The strategy was to combat the communicable diseases such as TB and water borne diseases in order to reduce the death rate that was of the highest in the world.

The change from the previous health care system to PHC made health care more accessible to all citizens of South Africa (SA). After the first democratic elections in 1994, members of the community took ownership of the strategy and started to give their full support to the redirected health care system towards PHC. This came along with the concomitant establishment of the District Health System (DHS) as framework for PHC delivery and management (Van Rensburg 2004:451). The DHS is seen as the key to ensuring decentralised, equitable PHC to all citizens of South Africa (Van Rensburg 2004:428).

Primary health care was now given a central place in the health care delivery system of South Africa which rendered comprehensive, coordinated, accessible, affordable and equitable health care to all, especially to those in greatest need of care (ANC 1994a:9, 59; Goel 2001c:44-46; Van Rensburg 2004:451).

The PHC approach is acuminated on the individual, the family and the community. The support they receive for treating and preventing disease and for protecting, maintaining and improving their health is integrated across health and health related sectors.

According to the Health Sector Strategic Framework (Department of Health 1999:16-17) some of the core norms state

- that the clinics should render comprehensive integrated PHC services using an one stop approach for at least 8 hours a day, five days a week which would make it accessible for the members of the community
- that the clinics should then have at least one member of the nursing staff who has completed a recognised PHC course, in this case it would be a professional nurse who has been registered with the SANC according to R48

- that there should be an annual evaluation of the provision of the PHC services to reduce the gap between the needs and service provision using a situation analysis of the community health needs and the regular health information data. This can be done by trained PHC nurses who are able to implement these principles of PHC in the community.
- all PHC facilities must have consistent and visible **back-up by doctors**
- that fully staffed and equipped facilities should be established so that they can provide a comprehensive health service and lead to more cost-effective service delivery

Comprehensive health services in this case would mean the rendering of preventive, promotive, curative and rehabilitative health care. This research mainly focused on curative PHC.

2.2.1 Shortage of health care providers in the rural areas

The abovementioned norms could not be followed to the fullest as there is a shortage of medical practitioners who should render curative medical PHC or provide backup for nurses who render this care on their behalf.

The shortage of medical practitioners has been felt in most countries of the world.

2.2.1.1 Shortage of medical doctors a world-wide problem

According to Couper (2003:1), who also conducted a study which focused on rural hospital staffing, one only has to open the *South African Medical Journal* (SAMJ) and the job advertisements to know that staffing rural health services is a world-wide problem. Many advertisements have been published to recruit doctors to fill posts in rural areas in Canada, Australia and New Zealand. These newly employed rural doctors will also probably know colleagues who are already working there. Professor Jim Rourker, a Canadian rural practitioner and teacher, suggests that there is an international directional flow of doctors

from West and Central Africa, to South Africa, Canada, and to the United States (USA), each preceding country filling the gap for the next country.

According to the Wonca World Rural Health Conference held on 3 May 2002 in Melbourne, Australia many countries in both the developing and developed world were experiencing a shortage of skilled health care professionals, particularly in rural and socially deprived areas. One of the responses of wealthier countries is to recruit health care professionals from the poorer countries rather than training sufficient numbers for their own country. This leads to a flow of highly trained professionals away from the countries that can least afford to lose them. The effect is to impact negatively on already seriously under-resourced health systems and therefore on the health status of developing countries.

2.2.1.2 Shortage of medical doctors in South Africa

South Africa is definitely no exception to this phenomenon. Any rural hospital medical superintendent will tell you that s/he spends a lot of time and energy on recruitment, with little response. The fact is that the foreign qualified doctors then make up the majority of rural hospital doctors (Couper 2003:1).

The shortage of doctors is also a major problem in rural South Africa (SA) especially in Limpopo. Most doctors prefer to work in the urban areas where there are tertiary institutions and better facilities. The doctor to patient ratio is very low. According to Health Systems Trust in the year 2000 Limpopo had 507 doctors, in 2001 there were 641 and in the year 2002 the number declined to only 460. Health Systems Trust further illustrates that the distribution of public sector personnel (doctor) per 100 000 in the Limpopo was 12,5 in 2000, in 2001 it was 12,2, in 2002 it was 9.1 and in 2003 it was 14,3. Limpopo is the province with the fourth least number of doctors in the nine provinces of SA (Geyer 1997:5).

2.2.2 Attempts to solve the problem of the shortage of medical doctors

In various countries of the world there have been some strategies put in place to curb the shortages, such as in:

Thailand

A study conducted by Chunharas (1997:15) on attracting doctors to the rural areas revealed that Thailand has experienced problems of attracting doctors to the rural areas and has implemented a number of strategies to alleviate this situation. The strategies which were applied and have had some success were

- upgrading of rural health facilities
- compulsory services for doctors in rural areas
- increasing doctors pay has helped to maintain some doctors both within the public sector and rural areas

Another strategy that has been implemented in the 1960's by the Thai government was the introduction of a policy to increase tuition fees for medical students who were from better off families. This policy was soon turned around by not allowing students to pay their own fees, and instead introduced a compulsory service which required students to work in rural areas for the three years after graduation or else be subject to a fine.

Due to the implementation of these strategies there have been significant increases in the numbers of doctors in Thailand over the last three to four decades, much faster than the population increase.

This increase has been accompanied by an increase in their regional distribution of doctors, although there is still a big discrepancy between regions especially Bangkok and the rest of the country. The average doctor to population ratio at present is 1:4500. The ratio is 1:900 and 1:10000 in the North-Eastern region of the country.

Canada

In a study done by Jaques (1994:398-400) on recruitment and the retaining of staff in rural areas the discrepancies found between the rural and urban areas in Thailand was confirmed. It was found that there is also a striking difference between rural health districts in which there has been some permanence of management and those in which there has been a rapid turnover. This problem has been the subject of considerable study in Australia and in Canada. In Canada at least three commissions studied this phenomenon. These commissions came to the conclusion that only missionaries, mercenaries and madmen will voluntarily seek a career in a remote area. This study by Jaques (1994:398) attempted to identify some of the factors which encourage or discourage doctors from working in under-developed regions. The following factors were identified:

- *Lack of career structure*. Doctors believe that the rural areas do not provide opportunities for further learning; there are less opportunities to work with specialists and learn new skills; there are less posts available in rural areas; and also there are not enough opportunities for promotion. The medical personnel are therefore not motivated to work in the rural areas.
- *Inappropriate training*. Doctors are often trained in academic hospitals and are able to use high technology in diagnostic processes, for instance. When they work in rural areas where these facilities are not available they find their training to be inappropriate for basic conditions.
- *Spouse satisfaction*. Their spouses often stay behind in the urban areas due to employment opportunities and the medical practitioners then have to make big sacrifices in their personal lives. Spouses who accompany their husbands are often not satisfied with conditions in the rural areas.
- *Schooling and children*. Medical practitioners often send their children to better schools in cities, and they either have to travel long distances every day or board in hostels.
- *Academic isolation*. Academic hospitals of large universities are located in cities. It is also here where new discoveries are made and research is done. Doctors in rural areas often feel left out as they are not part of this dynamic environment. The

lack of computers, libraries and scarce opportunities for working with specialists all make a career in a remote area less attractive.

- *Bureaucratic problems*. Medical doctors who work in rural areas experience bureaucratic problems which obstruct any initiative or improvement and they do not have the numbers, as their counterparts in the cities, to change their situation.
- *Poor working conditions*. The money of health budgets tend to be prioritised to larger hospitals and projects which are usually centralised. Rural medical personnel therefore often have to work in poor and basic conditions and lack necessary equipment and human resources, which could be very de-motivating.
- *The role of foreign graduates*. As foreign doctors are in a country on contract they are sent to the underserved areas which are often not very popular with the local doctors. As soon as the foreign doctors arrive in these areas, the local doctors move off to the cities.
- *Positive aspects*. Many governments tend to provide attractive packages to motivate medical practitioners to work in the rural areas, only to find that there is nothing positive on working in the rural areas, because of lack of implementation of these policies, due to lack of skills and knowledge in the rural areas (Jaques 1994:400).

South Africa

The National Department of Health has made some attempts to address the shortage of medical practitioner problem. The first strategy was to bring in Cuban doctors to serve in the rural areas of SA. They have certainly made a significant contribution, however, this is only a short-term solution. What we need is to get more South African doctors to these areas, as they are familiar with the communicable and endemic conditions, as well as the cultures of this country (Couper 2003:1).

The second strategy is aimed at the doing of community service by newly qualified medical practitioners. Although community services are not aimed only at rural hospitals but at all government hospitals, it has certainly made a major positive impact on staffing levels. To assess the impact of community services one needs to see how many service doctors stay

in their rural hospitals after their compulsory year. A hospital or district health service cannot function effectively with recruited doctors who stay for only a year. A solid core of doctors is needed to provide continuity in the rendering of quality care and continuous improvement of service rendering to these underserved areas (Jaques 1994:398-400). These medical practitioners could also provide support to other newly employed doctors in these areas and, be involved in the orientation and development of newly employed doctors and other staff members. The researcher's experience is that it takes urban doctors from 3 to 6 months to settle down into rural hospital work and make a positive contribution (Couper 2003:1).

A study conducted by Bowman (2003:1-5) on recruiting more rural doctors through partnerships between rural and academic communities, revealed that during the past century of great change in health care, one thing that remains constant is the need for rural doctors. Periodic interest in rural health peaks and new interventions are added, but rarely is that intervention evaluated or coordinated with other rural programmes for maximal effect. This study reviewed current data and impressions by experts in the hope that more would adapt a continuous approach to rural medical education beginning and ending successfully in rural communities. The following methods to increase rural workforce were implemented, namely

- "borrow" (steal) providers from other states,
- produce rural doctors in the country,
- support current workforce better and
- utilise new sources of workforce.

A study conducted by Geyer (1997:5) revealed that there were serious manpower shortages in the Northern province as well as in the North West province of SA. The National Department of Health, South Africa recognised the vital role played by community health workers, and came up with a five pillar policy to address this shortage. The five pillar policy includes the following:

- Planning human resource strategy

- Reviewing education and training
- Building capacity, changing managerial styles to a more open participatory approach
- Affirmative action, and
- Restoring an ethos of care

It was believed that the implementation of this policy would address the shortage of manpower in the Limpopo province, as this province only had 14,3 doctors per 100 000 of the population, compared to Gauteng where there has been 25,4 doctors per 100 000 in 2003.

See table 2.1 for a comparison of the ratio of medical doctors per 100 000 of the population in the nine provinces of the Republic of South Africa (RSA).

Table 2.1: Number of medical practitioners per 100 000 of the population

Year	EC	FS	GP	KZN	LP	MP	NC	NW	WC	RSA
2000	12,3	24,3	36,6	24,0	12,5	16,4	28,9	11,9	39,7	21,9
2001	12,2	22,2	28,7	22,3	12,2	16,4	26,3	12,2	32,5	19,8
2002	11,3	23,4	29,1	22,4	9,1	16,6	24,2	11,8	33,1	19,3
2003	12,7	23,1	25,4	21,3	14,3	17,9	28,4	11,5	31,9	19,2

(Pardarath, Ntuli & Berthiaumeii 2003b)

In the Western Cape there were 31,9 doctors per 100 000 of the population in 2003 (Pardarath, Ntuli & Berthiaumeii 2003b). The picture in the abovementioned provinces could even be worse, as it is believed that most of these doctors actually work in the urban areas. In cities, according to Geyer (1997: 1-7) there were one doctor to every 700 people, while in rural areas there were only one doctor to every 100 000 to 300 000 people.

Of the doctors working in KwaZulu Natal's district and provincial hospitals, 24% were found to be South African in 1997, and 76% were from foreign countries (Geyer 1997:1-7). Foreign doctors were mostly from Cuba, employed in the rural areas with no understanding of the local languages, cultures or endemic diseases.

The Department of Health together with medical schools were looking at a strategy to train more South African graduates equipped to take over positions in rural areas. South Africa also trained other categories of health personnel to render PHC in the rural areas, where no medical doctors where available to service the population.

2.3 REGISTERED NURSES SUBSTITUTE MEDICAL PRACTITIONERS

As already mentioned, PHC is seen as the key strategy for improving the health of the world. Akinsola & Ncube (2000:50) sees the PHC nurse as the backbone of health services particularly in Africa and that they need to render comprehensive PHC services (Bell, Ithindi & Low 2002:67). Primary Health Care nurses are now rendering health care previously rendered by medical practitioners. They are now not only rendering preventive and promotive health care as they have done in the past, but are expected to provide chronic health care, curative health care, to counsel patients before HIV testing, monitor psychiatric patients and are even expected to provide termination of pregnancy services (Cameron 2003:222; Kapp 2004:21). These services were previously provided by medical practitioners.

As there are not enough medical practitioners available to provide the members of a community, particularly in this province, with good comprehensive health care, **nurses need to substitute medical practitioners in providing PHC** (Chalmers, Luker & Bramadat 1998:64,66-73).

This presupposes that registered PHC nurses would **have** the necessary knowledge, attitudes and practices **to render appropriate health care**. Professional, specially trained nurses should therefore be effectively utilised to fill the gap in the rural areas caused by the shortage of other disciplines in the health field (Ogunbodede, Rudolph, Tsotsi, Lewis & Iloya 1999:351-358).

According to the International Council of Nurses (ICN) (2003:13) in every country, nurses are key members of the health care services. Their role and status, their educational preparation, their profession and their working conditions all vary greatly across the globe.

What does not vary is their commitment to caring and to service of humanity. The growing recognition of the key importance of the nurses in the health care team is demonstrated in the Munich Declaration (WHO 2000:6-12), supported by the Ministers of Health of the Member State of the WHO European Region, which state: "*We believe that nurses have a key and increasingly important role to play in society's efforts to tackle the public health challenges of our time, as well as in ensuring the provision of high quality, accessible, equitable, efficient and sensitive health services which ensure continuity of care and address people's rights and challenging needs"* (WHO 2000:15).

According to Geyer (1997:5) there might be sufficient nurses to render PHC services, but the issue is not the number of health care providers but the **quality of care** provided by these health care providers. The lack of skills and leadership in the rural hospitals and clinics are of utmost concern. Clear vision, dedication, commitment, and quality training are necessary to make change and improvement sustainable (Radebe 1999:16).

According to the study done by Geyer (2000:7) the PHC training of PHC nurses in Limpopo province is done by 3 recognised institutions in the province namely, Tshilidzini hospital, Univenda and the Health System Development Unit of Tintswalo hospital. The Health Systems Development Unit is the only PHC training institution which provides training for the Limpopo province. In December 1999, the Health Systems Development Unit performed a rapid assessment study for the hospitals in the Northern Province, compared to the other provinces, in order to ascertain whether the number of PHC nurses were sufficient to meet the demand.

Their findings are portrayed in table 2.2.

The statistics in table 2.2 indicate the number of members of the population in relation to the number of doctors and nurses in the various provinces in South Africa. It is clear from these statistics that there are not enough PHC providers for the number of consumers (population) in this country.

Table 2.2: Statistics of population per province as in December 1999

Province	Population	Percentage rural population	Number of doctors	Doctors per 100 000 population	Nurses per 100-000 population
Western Cape	4,2 million	23,6	6039	143,8	321,3
Eastern cape	6,7 million	67,2	2056	30,7	686,3
Northern Cape	0,9 million	26,9	338	46,5	432,2
Free state	2,7 million	45,9	1255	53,5	382,3
Kwa-Zulu Natal	8,9 million	61,8	4761	22,7	431,9
North west	3,6 million	67,8	817	127,4	273,5
Gauteng	7,8 million	4,0	9937	28,3	618,8
Mpumalanga	6,4 million	68,4	849	15,5	265,8
Limpopo	5,3 million	90,8	821	12,5	293,2
Total number	38.7 million	34.56	26052	468.4	3412.1

(Geyer 2000:7)

Limpopo province, for example, has 5,3 million people and 821 doctors, meaning that the ratio of doctors per 100 000 of the population is 12,5. This is lower than in Gauteng province where there has been 9937 doctors --- a ratio of 28,3 doctors per 100 000 of the population, which is double the ratio of the Limpopo province. This was why PHC nurses were trained in an attempt to address the problem (Geyer 2000:7).

From the above-mentioned statements and statistics, it is very obvious that Limpopo province has a great shortage of health care professionals compared to other provinces such as Gauteng, North Western Cape, Free State, Northern Cape, Eastern and Western Cape as well as Kwazulu-Natal. Therefore it indicates the need for PHC training to bridge the gap between the population and the health care providers.

In the next table the number of nurses who were employed in service centres in Limpopo province in 2000 has been outlined.

Table 2.3: The number of PHC Nurses in relation to service centers in Limpopo province in 2000

Section	Number of institutions	Minimum number of PHC nurses	Total
Regional hospital	6	Nil	0
District hospital	36	2	72
Health centers	24	8	192
Clinics	449	4	1796
Mobile Clinics	112	3	336
Total	627	17	2396
Attrition 10%	240		2636
Total	627	17	3636

(Geyer 2000:8)

It is clear from the statistics provided in table 2.3, that there is a shortage of PHC nurses at the service centers in Limpopo province despite the PHC training programmes which were running in the province.

Regional hospitals did not have or needed any trained PHC nurses as patients were referred to them from district hospitals. On the lower levels of health care delivery there should be more PHC trained nurses which was unfortunately not the case as seen in the table above where there were only four trained PHC nurses for 449 clinics.

This is a very bleak picture for the provision of PHC in the Limpopo province keeping in mind the great shortage of medical practitioners in this province.

The findings of the rapid appraisal study of Geyer (2004:10) has been reported in the annual report for the strategic plan review for 2003 and the current statistics for the total number of trained PHC nurses within the province has been provided in table 2.4.

Table 2.4: The number of trained PHC nurses per training institutions in the Limpopo province in 2003

Institution	Number of trained PHCN: March 2003	Number of trained PHCN: December 2003
HSDU	370	433
Tshilidzini	145	145
UNIVENDA	111	111
Total	626	689

(Geyer 2004:10)

Despite the fact that the three training institutions are providing PHC training in the Limpopo province, the number of trained PHC nurses are still lower than one would expect, as there were only a total of 626 trained PHC nurses in March 2003 and only 63 more in December that same year. This is also not enough to render quality care to the large rural population of the province, as the problem is aggravated by the fact that their are only 821 medical doctors to serve 5,3 million people. The Department of Health has therefore requested that the training of PHC nurses should be stepped up and an attempt should be made to train at least 100 PHC nurses per year.

Training institutions therefore not only have to increase the number of trained PHC nurses to bridge this gap, but they need to produce diplomates who are capable of rendering quality PHC under difficult working conditions.

2.3.1 The knowledge and special skills required of a PHC nurse

If the professional nurse is to substitute for medical practitioners when they are not available to render PHC services in the rural areas, s/he should have at least some of the knowledge and skills expected of rural doctors to be able to substitute this role. It is therefore important to determine what this would entail.

Primary Health Care nurses are required to have a *firm knowledge base* and have *developed a variety of skills* to be able to address the need of the community. The PHC nurses should be able to provide an effective and efficient health care service independent

of a medical practitioner and pharmacist. In a study by Kinnersley, Anderson, Parry (2000:1046) it was found that there were no difference between the services rendered by nurses and those offered by medical practitioners where patients requested “same day” consultations. Registered PHC nurses could therefore render PHC that is just as good as that rendered by the medical practitioners if s/he has developed a firm base of knowledge and skills.

The PHC nurse also should have developed the necessary knowledge and skills to judge whether they *themselves are competent enough to treat the patient* and *when to refer* the patient to the next level of health care delivery. Radebe (1999:16) states that this could only be achieved by proper training.

It would be ideal if the PHC nurse could share her responsibilities with other members of the multi-disciplinary team as the philosophy of PHC advocates. With the shortage of the other members of the multi-disciplinary team in the most remote rural areas, complicated by the many needs of the members of the community, the PHC nurse often does not have the opportunity to be part of a multi-disciplinary team. With the development towards a greater *comprehensive approach* to patient care – nurses are often required to render PHC which includes primary mental health care, for which they often do not feel properly prepared (Secker, Pidd & Parham 1999:643-652).

This practice is seen as unfair not only to the PHC nurse but also to the patient. Swartz and MacGregor (2002:155-172) argue that the integration of mental health care into the already over burdened PHC system may have unintended negative consequences for patients. It is accepted, however, that nurses are the backbone of the PHC services and they should know how to assess a patient properly to be able to determine whether they are dealing with a physical or mental condition.

The philosophy of PHC advocates that not only professionals should be members of the team but that members of the community should also be included. This is of great value for the success of PHC because as soon as the members of a community are made part of the decision making process they tend to take ownership of the programme, and accept it.

Yekani (2001:1) indicated that to ensure effective implementation of the PHC services, communities must be involved in the assessment of health care problems, planning and implementation of intervention programmes. Communities must be informed about health issues, which affect them and be encouraged to take responsibility for their own health, with the support of all the health care workers.

Few, Harpham and Atkinson (2003:45-53) found in their study of urban PHC in Africa that the only way quality services could be made more accessible to the poor who need these services the most, was by fostering community involvement in health care and health related activities. Another important member to include in the multi-disciplinary team is the traditional healer from that particular community. Peu, Troskie and Hattingh (2001:49-55) confirmed in their research that the integration of traditional healers in PHC in the North West province, South Africa, was of utmost importance. The study revealed that PHC nurses demonstrated a positive attitude towards working with traditional healers.

The findings of research conducted by Jaques, Reid, Chabikuli and Fehrsen (1998:2-4) on the appropriate role and skills of rural doctors revealed that the role and practice of the generalist doctor in rural community hospitals in South Africa is extremely wide, and poorly documented. In the absence of specialist support, the rural generalist is called upon to perform clinical duties ranging from PHC to emergency surgical operations, as well as administrative, teaching and leadership functions within the health team.

Fortunately the role and function of the PHC nurse and the knowledge and skills she should have, have been clearly outlined in the R48 regulation compiled by the SANC. The PHC nurse therefore will not be mini-doctors but will render essential PHC, including emergency care and refer the patients which s/he cannot treat to the next level of the provision of health care where the medical practitioners are.

The PHC nurses therefore need quality training to diagnose the conditions they are dealing with correctly, which they may manage themselves, but they must be able to recognise the conditions which fall outside their scope of practice and which need prompt referral.

Unfortunately, even the best training could not be enough when faced with the many problems in the real life situation.

2.3.2 Problems in clinics in the remote rural areas

Littlewood and Yousuf (2000:675-681) state that even with the overwhelming endorsement of the philosophy of PHC, very few countries have made changes in policies and infrastructures for implementing the underlying values and beliefs ascribed in PHC. Changes that have occurred have not been organised around the vision or the principles of PHC. This delay has had, and will continue to have, a huge impact on nursing education, practice, and research. Nurses are interested in helping people attain, maintain, or regain health and PHC has the potential to achieve health for all citizens of the world. Unfortunately many problems that existed in the early years of the development of the philosophy of PHC have not yet been addressed satisfactorily. Primary health care nurses are dedicated and committed to render quality care, but are often overwhelmed by large numbers of patients and shortage of resources.

A study conducted by Geyer (1997:1-7) on people who provide PHC revealed that the health providers are faced with the following problems in rural areas:

- long queues of patients waiting for long hours to be seen
- insufficient staff to deal with the large numbers
- inadequate supplies of drugs
- not enough or any necessary equipment to provide the quality care they would like to render

The researcher of this study indicated that they were impressed in finding many members of staff who cope well under these circumstances. Others were found to be understandably depressed and demoralised.

The majority of PHC nurses will become stressed which would result in high staff turnover. This was found in a study done by Cranwell-Ward, Bacon and Mackie (2002:2005).

Factors causing excessive stress are among others intrinsic job factors, their role in the organisation, relationships at work, career development, organisational structure and differences in culture among workers. Low staffing ratios and high workloads also contribute to stress, compassionate fatigue, burnout and increase in adverse incidents (Geyer 2004b:36).

In a study done by Uys (2004:113) in PHC services in the Southern Cape/Karoo region of South Africa it was found that resources were limited in the clinics of this region which made service delivery difficult for PHC nurses. It was also found that staffing levels were unrealistically low and vacant posts were frozen and that staff had to cope with the resulting increased workload as well as expectations from management and government. Obtaining stock and equipment was also a major problem in this region and most PHC clinics functioned with a deficient budget. Buildings were generally inadequate and not close enough to patients.

The rapid changes in the political climate have also been much faster than those in institutions themselves, and staff could not keep up with changing policies and legislation. Supervision and leadership also seemed to be a problem in this region. Role modeling and support by management were experienced by the PHC nurses as inadequate (Uys 2004:115).

The training of the PHC nurse may be sufficient but will they render quality care faced with the abovementioned realities of the PHC services?

2.3.3 Formal training is not always a guarantee of competence

Unfortunately not all formal training is adequate to develop the PHC nurse needed in the services. This was also one of the findings of a study done by Louwagie, Bachman & Reid (2002:32-37). In this study a comparison was made between the clinical competencies of nurses who obtained the Advanced Diploma in Health Assessment, Diagnosis and Treatment at the University of the Free State, South Africa, with those who did not have a formal clinical training. Relationships between quality of care and nurses' and clinics'

characteristics were also examined since they could be predictors of quality of care, independent of the influence of training. The results of the patients managed by “trained” and “non trained” professionals were compared and adjusted for nurses’, clinics’ and patients’ characteristics. What was shocking is that there was generally little evidence of patients being thoroughly managed.

In this study it was found that formal training was only marginally associated with better care for patients who presented with acute respiratory tract infections, but not for chronic conditions such as diabetes. Fixed clinics were found to generally render better quality care than mobile and satellite clinics. Nurses were therefore capable of managing the so-called minor ailments but were not competent enough to manage patients with more serious chronic conditions such as diabetes mellitus or hypertension. This could be due to the fact that nurses had the support of other members of the multi-disciplinary team, such as medical practitioners and senior nurses in the fixed clinics. In satellite clinics they are expected to function independently and then cannot render effective care when faced with the realities in these remote areas. It is therefore accepted that good quality training of nurses is of utmost importance if the objective is to address the problems of the community effectively.

Perhaps if PHC could be integrated in all nursing curricula the quality of health care delivery would also improve. The ICN has advocated in 1998 that PHC should be integrated in the nursing curriculum. This was confirmed by Strasser (2003:1) who declared that the current problems in nurse training in SA calls for a PHC approach.

Wermere (1996:6), however, supported the training of specially trained PHC nurses by saying that basic health care should be encouraged, and this can only be achieved by training PHC nurses who will be able to implement the principles of PHC according to the Alma Ata declaration.

Geyer (1997:12) recommended, after a study done by the Natal Institute for Health Education (SA) which designed a model for the re-orientating of health workers, to focus on

PHC and also recommended that this project needed to be **evaluated** to **determine the effectiveness of the training** programme offered by the local university.

2.4 PERCEPTIONS OF THE NURSES

In Britain a study was conducted to study student' experiences with PHC training classroom learning sessions, clinical placement and a written session. The findings revealed that students experienced difficulty to acquire most skills and knowledge during their classroom and clinical sessions (Chalmers et al. 1998:64).

Research done in 1997 and in 2001 (Health Systems Development Unit 2004) on innovative PHC training programmes at Tshilidzini Hospital in the Northern province, South Africa, revealed that nurses need to be specifically and properly trained the new way of approaching their patients in the PHC setting. The results indicated that the attitude of nurses without PHC training changed from "know-it-all" to "feeling too incompetent" to approach patients during assessment when faced with the realities of the PHC setting. The researcher recommended that all clinic nurses should undergo PHC training so that they can acquire skills in the assessment of patient's needs.

Some of the realities of the real PHC setting were revealed by registered nurses in research done by Yekani (2001:1). The findings of this research done on the attitudes and perceptions of registered nurses regarding the implementation of the comprehensive PHC model in the Eastern Cape province, South Africa indicated that shortage of staff, need for further training and lack of communication was of the most pressing problems mentioned by the participants, which were detrimental for the effective rendering of PHC services.

The abovementioned researcher also believes that a nurse has to demonstrate her competence, whether she is able to combine skills, information and understanding.

Whether the essential outcomes of a training programme have been achieved at a required level of performance need to be evaluated (Yekani 2001:1).

2.5 DECENTRALISED TRAINING PROGRAMME

One of the expectations of decentralising a training programme into medically underserved communities is that it would increase the likelihood that the graduates of the programme would practise within their own regions (Hamilton & Wildman 1996:293-302). This was confirmed by a study conducted by Ballweg and Wick (1999:220). Both these studies found that decentralised trained graduates have a high likelihood to practise within their own regions and have acquired the necessary skills and knowledge.

The question is however, how good will these graduates be prepared in these decentralised training centers?

A study conducted by Ballweg and Wick (1999:220-225) compared the final grades of the five year medical students at the main campus of Seattle University, USA, with those who were involved in decentralised training. The training that these distant sites provided were questioned as it was believed to be inferior when compared to that offered in the main campuses. The findings revealed that with the exception of three individual cases, the overall academic performances in all training sites were comparable. This suggests that should programmes in the decentralised training employ some of the curricular and administrative controls of the main campus, parity in education across various training sites will be possible.

For any decentralised training programme to be successful it should be well developed and training *per se* should be emphasised. Adequate financial assistance should be available and there should be good communication between all the stakeholders (McClaren & Philpott 1998:20).

The study done by Mathe (1999:2) revealed that for any clinical training programme to be effective it is also important that clinical preceptors receive continuous in-service training to be able to support the students effectively.

2.6 EVALUATION OF PRIMARY HEALTH CARE SERVICES AND TRAINING

Jacobs (1997:12) declared in the study, on the evaluation of PHC in South Africa with specific reference to the implementation of a district health system in the Free State, that the South African government has committed itself to the development of a comprehensive health system based on the PHC approach as enunciated by the World Health Organization in 1978. The aim of the abovementioned study was to evaluate the comprehensive PHC system with specific reference to the implementation of WHO guidelines. The research revealed that although the Free State Department of Health committed itself to the recommendations made by the WHO, the province did not apply these principles in practice, although problems, such as inadequate qualified PHC personnel, were identified.

According to a study done by the Department of Health and the University of the Free State (1998:8) to monitor the training programmes of community health workers in the Free State province, South Africa, the community based programmes did not function as expected. This was due to contributory factors such as the lack of support, supervision and evaluation of the community based training programmes by the government. A community based research task group was ultimately formed to address this problem and their task was *inter alia* to:

- take responsibility for the training in the Free State province
- solve problems before and during the training
- conduct research

A study was conducted in Nigeria to critically assess the achievements of the PHC programme. It was found that nurses, because of the sheer number of skills, can make a useful contribution to the development and the sustenance of the programme, if given adequate training and incentives (Jinadu 2002:27).

The ICN (2003:33) developed a framework of competencies for PHC nurses. The ICN encouraged the evaluation of nurses before entering a training programme and after the

completion of the training programme, to ensure that trained nurses has the relevant competencies regarded by the ICN as important. These competencies should be reviewed regularly, updated as required and re-issued according to guidelines of a particular country.

The evaluation of the PHC student (the participants of this research) is done through-out the training period by using formative and summative evaluation. Formative evaluation is done in the form of assignments and tests and through continuous clinical presentations. Summative evaluation is done in the form of a final year mark, final OSCE, final long case study, a research project and a management assignment (Geyer 2000:5).

2.6.1 The evaluation of the clinical training programme of PHC nurses

The evaluation of clinical training programmes is becoming increasingly important in the modern health care system as economic and manpower resources are scarce, resources for new clinical training programmes are shrinking --- therefore the impact of existing training programmes are questioned (Matheo & Kirschoff 1999:90).

There are many ways in which a clinical training programme can be evaluated for its effectiveness. To this aid Matheo and Kirschoff (1999:90) discussed three distinct phases that encompass the process of evaluation of a programme which will be applied to the clinical training programme of professional nurses.

Firstly, the evaluation of the *planning of a programme*; secondly the *implementation* of a clinical training programme can be evaluated, and lastly, the *success* of the clinical training programme can be evaluated. The first two programme evaluation processes are jointly called *formative evaluation* whereas the third is termed *summative evaluation*.

As summative evaluation focuses on measuring the general effectiveness or success – that is the outcomes of the clinical training programme in PHC --- the researcher decided to evaluate the outcomes of the training programme. According to Matheo and Kirschoff (1999: 90) outcomes of a programme, in general, can be evaluated as follows:

- evaluation of the success of a training programme and the effects that it has on cost
- evaluation of the effects a training programme has on each of the clients involved in the programme
- evaluation of training programme-based outcomes
- evaluation of the success of a training programme by evaluating the quality of care rendered

These summative outcomes will be briefly discussed below.

2.6.1.1 Evaluation of the success of a training programme and the effects that it has on cost

The success of a PHC training programme could be measured by determining to what extent the objectives of the PHC programme have been met in relation to the cost of the training programme.

The objectives of PHC were to render a health service on grassroots level to the community by ensuring that the service is acceptable, accessible and affordable for the members of the community for whom it was intended.

By training nurse professionals to deliver curative health care, the service **not only** could be rendered cheaper (the services of medical practitioners are more expensive than that of professional nurses), and good quality care could be rendered, as these nurses are specially trained to substitute medical practitioners where and when they are not available. To evaluate this outcome, the cost of services rendered before and after the implementation of trained PHC nurses has to be compared. Also the accessibility and acceptability of the services before and after the use of trained PHC nurses have to be compared (Matheo & Kirschoff 1999:98)

2.6.1.2 Evaluation of the effects a training programme has on each of the clients involved in the programme

Whether the training programme of nurses has allowed the patient to improve his or her health or functional status or the quality of the patient's life will have to be researched to evaluate this summative outcome. If this would not be achieved the effectiveness of the training programme is questionable.

Another important aspect is patient satisfaction. Increased patient satisfaction as a result of the implementation of a new programme (or trained PHC nurses) is another indicator of whether the intervention is effective. Research suggests that an intervention that decreases a patient's satisfaction may also lead to the experience that the health status has deteriorated (Matheo and Kirschoff 1999:96).

Another way in which the effect of a training programme on the patient can be evaluated is by determining to what extent patients tend to revisit the health service with the same complaint, or seek health care elsewhere. Researchers should therefore take any changes in the patient's satisfaction with the programme into account during the evaluation of such a programme. Any decrease in satisfaction can point to problems in the purpose, scope and implementation of the training programme.

2.6.1.3 Evaluation of programme-based outcomes

The evaluation of the training programme itself could be done whereby the success of the programme is examined on an organisational level and its overall impact determined. These programme-based outcomes are often assessed in terms of the fiscal impact, and also in comparison to other similar clinical programmes.

It is of considerable importance that a training programme is not too costly and that in the case of PHC would reduce costs. An effective training programme is one that improves the quality of and delivery of care while maintaining, or perhaps even reducing medical costs for both the patient and the authority who renders the service.

This outcome is generally long-term in nature and requires multiple follow-ups, which can pose a considerable financial burden to evaluate. Information needed to measure this outcome, involves information about patient clinic visits, referral to second level of service rendering, hospitalisation rates and related to length of stay, emergency room visits, supplies and equipment costs, personnel time and costs for patient to name but a few (Matheo & Kirschoff 1999:97).

2.6.1.4 Evaluation of the success of a programme by evaluating the quality of care rendered

Professional nurses are specially trained to stand in for medical practitioners, therefore the curriculum is designed to train them to render quality care. They should be able to

- take the history of a patient
- conduct a focused physical examination
- make a correct diagnosis
- prescribe appropriate treatment for the diagnosed condition
- refer the patient if necessary
- render emergency care if necessary
- give health education
- write correct clinical notes

Nurses who are required to render PHC should also feel confident that they are able to render the care as it is intended. They therefore have to be trained properly and allowed enough clinical experiential learning time to practise their newly developed skills and apply their knowledge to become and feel competent to take on this great responsibility.

One aspect of programme evaluation which is often overlooked is that of nursing staff satisfaction. Research conducted by Slevin, Somerville and Mckenna (1996:19) in Mateo and Kirschoff (1999:97) found that satisfaction among nurses was related to better interpersonal and therefore quality care of patients. Trained PHC nurses should feel comfortable about their training, gained knowledge and skills. If not, it might cause

frustration and uncertainty. This will in turn affect the fashion in which the care is rendered and might diminish the quality of care rendered. This will also most probably influence patient satisfaction and the health status of the patients.

This research focused on the evaluation of the effectiveness and success of the decentralised training programme of PHC nurses by evaluating the quality of care rendered by the newly qualified diplomates. This research seeks to determine whether the newly qualified diplomates were able to manage patients appropriately and independently in the PHC clinics when they were faced with the realities of the real world.

2.7.1 SUMMARY OF CHAPTER 2

According to literature reviewed it was apparent that there were a multitude of factors that could influence the effectiveness of PHC services. Some of these factors have been discussed such as shortage of doctors.

Trained nurses are seen as one of the many solutions to the problems to ensure the rendering of quality PHC in the most remote rural areas of South Africa. These nurses need however to be properly trained to substitute medical practitioners. They need sound knowledge, new skills, confidence and endurance to cope with the difficulties in the PHC setting.

As the training programme, discussed in this dissertation is decentralised to a number of clinics in the region, it is believed that it **should** be evaluated. The most appropriate manner in which the effectiveness of the training programme could be evaluated is by evaluating the quality of care rendered by the newly qualified diplomates.

In the following chapters the methodology followed to collect data (chapter 3) and discussion of findings (chapter 4 and 5) would reveal to what extent newly qualified diplomates were able to manage specially selected patients appropriately, when faced with the realities of the real world.

CHAPTER 3

RESEARCH METHODOLOGY

3.1 INTRODUCTION

In the previous chapter important aspects relevant to the research found in the literature have been discussed.

This chapter outlines the procedure used to obtain data which includes *inter alia* the research design, the research population, the sampling techniques, the research instruments used as well the ethical aspects involved in this research project (Polit & Hungler 1995:227).

3.2 THE AIM OF THE RESEARCH

The aim of the research was to determine how effective the training of the diplomates of the one year decentralised training programme in the Limpopo province was. This could be **demonstrated** to the extent they have attained the summative outcomes of the training programme, when confronted with conditions in the real situation and without the support and guidance of trained personnel in the PHC clinic, by effectively and appropriately executing certain tasks on specially selected patients.

3.2.1 Research questions

Outcomes of the training programme were used as conceptual framework for this research. Therefore, the formulated research questions and research objectives of this research as mentioned in chapter 1, which were in fact the outcomes of this decentralized training programme, formed the conceptual framework of the research.

It was decided to determine to what extent the diplomates of the one year decentralised training programme were able to execute the following summative outcomes:

- Take the history of a patient?
- Conduct a physical examination on a patient appropriate to his/her condition?
- Make a final and correct diagnosis based on the findings of the history and physical examination?
- Prescribe the treatment for a patient?
- Refer a patient when necessary?
- Provide appropriate health education to a patient?
- Write clinical notes?

The following questions were also asked:

- How did the diplomates in PHC experience their training?
- Do they feel confident that they have the necessary knowledge and skills to be able to independently render an effective PHC service?
- What problems have they experienced?

The following objectives related to the dissertation were also stated:

- To make recommendations to improve the decentralised training programme.
- To make recommendations for further research.

3.3 SUMMARY OF THE MODUS OPERANDI THAT WAS FOLLOWED

The following steps were followed in order to collect data for this research project

- A preparatory literature study was undertaken in order to provide back-ground information necessary to proceed with the required research.
- A suitable methodology was chosen, as well as the sample, and sampling method.
- Key concepts were defined or explained.

- A checklist being used by another training institution in another province was obtained, discussed with a medical practitioner and supervisors of the research and adapted to use during data collection in collaboration with the already mentioned medical practitioner. This training institution wished to stay anonymous.
- Text books containing information on the history taking and physical examinations were consulted to draw up the research instrument.
- The checklist (and interview schedule) was submitted for approval to a statistician at Unisa as well as to the supervisors of the dissertation (annexure A).
- The researcher applied for permission to conduct the research project. (annexure B).
- Permission to conduct the research project was obtained from the local hospital where the one year decentralised PHC training programme was offered and the Limpopo Provincial Research Committee, Department of Health and Welfare (training section) as well as the Ethics committee of the Department of Health, University of South Africa (annexure C).
- A medical practitioner who indicated that he would be willing to take part in the research project was briefed of his responsibilities when observing the diplomates as they managed the selected patients.
- A stratified sampling technique was used to select participants who fitted the selection criteria.
- Informed consent was obtained from the diplomates and patients who were selected to take part in the testing of the research instrument.
- The research instrument was tested by observing two (2) participants who were not part of the final study.
- The necessary adjustments were made to the research instrument and the final copy was produced and photocopied.
- Informed consent was obtained from the diplomates who were selected to take part in the final study (annexure D).
- Appointments were made with the participants to conduct the observations
- Informed consent was obtained from the patients who were selected to take part in the final study (annexure E).

- The observations were carried out using the prepared checklist. The personal interviews were held with the participants after each observation using the prepared interview schedule.
- With the help of a computer, the SPSS computer program and under the guidance of the supervisors and a statistician data were analysed.
- The analysed data were presented in tables and graphs and discussed in chapter 4 and 5.

3.4 RESEARCH METHODOLOGY

Polit and Hungler (1999:36) describe a research design as the overall plan for obtaining answers to the questions being studied, and for handling some of the difficulties encountered during the research process.

A qualitative, exploratory, descriptive and contextual research design was used in this study to evaluate the effectiveness of the decentralised PHC training programme.

This design was evaluated to determine whether it would

- address the research questions
- produce results that are meaningful
- demonstrate any cause implied in this study
- whether the results would be generalisable to other similar situations (Mouton 1996:103). The latter have been explained in more detail in this chapter.

The concepts related to the research design have been described below.

3.4.1 Quantitative research

According to Burns and Grove (1997:27), quantitative research is a formal, objective, systematic process in which numerical data are utilized to obtain information about the world.

The research approach used in this study was *quantitative* in nature as the researcher decided to make use of a preplanned and prepared checklist which contained numerical values applied to a set of outcomes which was believed, a diplomat of this training programme, should be able to attain.

A diplomate of this training programme should follow a number of steps when managing a patient appropriately. These steps were observed objectively by two researchers who made use of their senses and a planned and structured research instrument rather than their personal beliefs or hunches (Polit, Beck & Hungler 2001:14). It is because of this systematic fashion in which data was collected that the quantitative paradigm was considered the most suitable.

3.4.2 Explorative research design

According to Polit et al (2001:19), explorative research begins with some phenomenon of interest and *explores* the full nature of the phenomenon. This design is usually used in qualitative research. However since a structured research method has been used to collect data and no research findings could be located where the problem has been researched, the research design could also be considered to be explorative in nature.

3.4.3 Descriptive research

The main objective of nursing research is, according to Polit et al (2001:19), to *describe* and elucidate a phenomenon related to the nursing profession. The researcher observed, counted, described and classified certain criteria which was present during the observation of the diplomates of the decentralised training programme designed and then *described* the findings. The research design is therefore also descriptive in nature.

3.4.4 Contextual research design

As the research project was executed by observing a *certain* group of diplomates of a *certain* training programme at a *certain* health institution at a *certain* time, the research

design is contextual in nature. The researcher therefore does not believe that the findings could be generalised to other groups of diplomates even if they should be part of similar training programmes in SA. This limitation will be discussed in chapter 5. In the following sections the unique *context* of the research has been outlined.

3.5 RESEARCH POPULATION

A research population is the entire aggregation of cases in which a researcher is interested (Polit et al 2001:289). The research population is further defined as the entire set or a total group of persons or subjects that meet the sampling criteria (Burns & Grove 2001:226; Polit & Hungler 1997:223).

The population for this study comprised of the diplomates of the decentralised PHC training programme in the Limpopo province, SA. There were a total number of 60 students who completed their training during 2004 in the one year decentralised PHC training programme. The sample was obtained from this group of diplomates.

3.5.1 Sampling

As it is impossible in any research to study the whole population, a sample is always drawn which includes as many of the attributes of the research population as possible.

Sampling therefore involves the process which is followed in selecting a group of people, events, behaviours, or other elements with which to conduct a study (Burns & Grove 2001:226).

3.5.1.1 The sample

A sample is the subset of cases drawn from the target or accessible research population (Burns & Grove 2001:226). A stratified random sample was employed in this research. In a stratified random sample the population is divided into homogeneous subsets from which participants are selected at random. As the diplomates were from 6 districts within Limpopo

province two diplomates have been selected randomly from each area. As the diplomates were of the same racial group and were all part of the trainees of the decentralised PHC training programme the sample was considered homogenous.

A sampling frame was established by the researcher, by obtaining a list of names of the diplomates in each of the six districts from the training school. The sample was selected by placing their names in a hat. The selected participants were contacted and informed about the objectives of the planned research and the role they were asked to play in it. (All the selected participants were willing to take part in the research project). Thereafter the diplomates were informed of their ethical rights and were asked to sign a consent form. (See the ethical considerations discussed in this chapter as well as the annexure for the informed consent forms) (Polit et al 2001:291). None of the participants withdrew during the research project.

The sample size of this study was 12 participants, which was 20% of the total research population, which were 60 diplomates.

3.5.2.2 Sampling criteria

Sampling criteria are the characteristics essential for inclusion in the target population such as age limit. The researcher therefore decides what attributes members of the research population should have to be considered for inclusion in the sample (Burns & Grove 2001:226).

In this research, the sampling criteria were that the participants (diplomates) should have

- completed their PHC training as part of the
- decentralised PHC training programme
- in the Limpopo province
- during 2004
- and were working in one of the PHC clinics

- of the six identified districts namely Bohlabela, Waterberg, Sekhukhune, Vhembe, Capricorn and Mopani.

The participants who were willing to take part in the research project were then contacted and a suitable date for the observation was negotiated between them, the researcher, medical practitioner and the health service.

The patients who were used in the observation were selected as follows:

- Early in the morning of the set date for the observation session the researcher visited the health institution where the patients reported to be seen by the health personnel (The health institutions used for the research were not one of the named clinics where the diplomates worked). See 3.6.1 below.
- Patients who were known to be hypertensive patients were selected. The participants were unaware of the diagnosis of these patients as the patients were selected from the female and male medical wards of the local Tintswalo hospital as well as from the outpatient department of this hospital.
- The patients were briefed on the objectives of the research, their role in this process and their rights. This has been discussed in more detail under point 3.9 in this chapter.
- Their cooperation were asked as it was believed that it might prolong their visit to the health service (in the case of the out patients department). All the patients who were approached to take part in the research gave their permission.
- The patients who took part were also asked to sign a consent form.

The co-researcher was selected and briefed as follows:

- A medical practitioner who is allocated to the PHC services was approached and briefed about the objectives of the planned research project, and how it would be executed. He was asked whether he would assist the researcher with the observation of the diplomates as they manage the patients in the PHC clinics. He agreed as he himself is involved in master's studies and was interested in this research.

- As he was willing to take part, the researcher cooperated with the medical practitioner in refining the checklist that would be used during the observation.
- As soon as the researchers were satisfied with the final instrument it was sent to the supervisors and statistician for approval.
- Thereafter copies were made of the checklist, as one checklist would be used for each observation.
- The process that would be followed was again discussed with the co-researcher and it was decided that each researcher should have a copy of the checklist to fill in during the observation and that they would meet after each observation and compare the results.
- Should there be any differences between the findings of the two researchers, it would be discussed until consensus was reached.
- It was also decided that the minimum questions would be asked to the participants during the procedure. The questions that were asked to the participants are listed below. These questions were noted by the researchers during the observations. The questions were:
    - What is the differential diagnosis you could deduct from the history of this patient?
    - What information in the history of this patient led you to this differential diagnosis?
    - Indicate the nursing and medical diagnosis of this patient
    - On what findings did you base the diagnosis?
    - When and how would you provide emergency treatment to a patient with hypertension?
    - Did you detect any potential problems that would need further attention?
    - When would you refer a patient?
    - Write a referral letter for this patient.

3.6 DATA COLLECTION

Data were collected through the observational method and an interview of the participants.

3.6.1 Observational method

Data were collected by observing the participants as they managed the patients. The advantages of the observation method of data collection are that the observational method has an intrinsic appeal with respect to the capturing of a record of behaviours and events (Polit & Hungler 1999:212). Various types of information by nurse researchers as evidence of nursing effectiveness or as clues to improving nursing practices can be obtained through direct observation. Within nursing research, observational methods have broad applicability, particularly for clinical enquiries. The observational method can be used fruitfully to gather a variety of information on characteristics and conditions of individuals, verbal communication behaviours, exchange of information during medical administration, non verbal communication and environmental conditions. Thus the observational method is an extremely versatile approach to data collecting in nursing research (Polit et al 1995:313).

The observational method also has some disadvantages as emotions and the anticipation of what is to be observed may effect what is observed. Hasty decisions before adequate information is collected may result in erroneous classifications or conclusions. The researcher does not assume to have overcome all possible problems that may have affected the results, but did attempt to make the research and findings as valid and reliable as possible (Polit et al 1995:313-314). The researcher decided that the observational method would be the best method of data collection to obtain first hand information on how well the diplomates managed patients in the clinics.

The structured observational method made use of a checklist prepared in advance and used during the observation. The research instruments have been discussed in more detail in this chapter, (3.7).

Three observations were conducted per day. The following table indicates the dates on which the observations were conducted and the clinics from which the participants originated.

Table 3.1: Dates of observations and clinics from which participants originated

DATES	2005-05-30	2005-05-31	2005-06-01	2005-06-02
CLINICS	Bohlabela	Vhembe	Bohlabela	Vhembe
	Waterberg	Capricorn	Waterberg	Capricorn
	Sekhukhune	Mopani	Sekhukhune	Mopani

The following procedure was followed on each day.

With the co-researcher:

- The method to be used during the day was again confirmed with the medical practitioner.
- A copy of the checklist was provided to the co-researcher by the researcher, before the observation of the participant managing the patient commenced. A new copy of the same research instrument (checklist) was provided for each observation.
- The participant and patient were introduced to the co-researcher.
- The observation took place and the researchers ticked off to what extent the various competencies have been attained.
- The results of the checklists of the researchers were compared and discussed.

With the participant:

- The researcher met each participant at the outpatient department of the local hospital where the observation of the clinical management of the patient was to be observed on the specific date and time allocated for each participant (table 3.1 above).
- The researcher again explained the method that would be followed to the participant. The method which was to be followed that day as well as their ethical rights were also provided to them in printed form to allow them to study it at leasure. (annexure C) The participants were allowed to ask questions before the evaluation process started.
- Each participant was asked to sign a consent form.

- The participant was instructed to manage the patient as s/he would have done in the clinic.

With the patient:

- A patient who was selected according to his/her diagnosis, namely hypertension, was briefed about the procedure which was to be followed.
- Her/his ethical rights were explained to her/him and s/he was asked to sign the consent form. The patient was also provided with a printed list of his/her rights. The patient was allowed to ask any questions to the researcher before the procedure, but was also informed that s/he could ask any question at any time during the procedure. (refer to annexure D)
- The patients were requested not to divulge the fact that their diagnosis is hypertension to the participants, but when asked what their main complaint were, they would explain how they felt.

The procedure followed to conduct the actual observation:

- The diplomate was assigned to an interview room where s/he had to conduct the interview. The patient's file was not given to the diplomate. The diplomate had to make notes of important aspects of the patient's history. After the history was taken the diplomate had to highlight certain aspects of the patient's history to the observers which might be important to the correct management of the patient. The participant was observed while taking the history of the patient. This was done to observe the participant's professional conduct and also to make sure that the patient does not divulge his/her diagnosis to the participant.
- The participant had to provide a list of differential diagnosis derived from the patient's history. (See the abovementioned list of questions)
- The participant then asked the patient to lie on the examination bench and conducted the physical examination while being observed by the observers.
- During the observation the following were noted: The manner in which the participant
    - executed the physical examination

  - executed the side room investigations
  - executed the correct maneuvers
  - communicated with the patient during the examination
  - conducted herself/himself professionally
- The participant was then asked to indicate what the diagnosis was and had to motivate her/his decision. If it was done correctly the outcome was marked "competent" on the checklist.
- The participant then had to indicate what treatment action s/he would take. Again if it was done correctly this outcome was marked "competent" on the checklist.
- S/he then had to indicate when the patient would have been referred and how it should be done.
- The participant then had to indicate whether and what would be prescribed by her/him.
- A prescription for the patient had to be written by the participant and the participant had to motivate each item on the prescription, if applicable.
- The information provided to the patient related to her/his illness (health education) and when to report back to the clinic was also observed.
- The participants then had to write clinical notes.

After the observation process the evaluation measures of the researcher and co-researcher that were dotted down on the checklist were compared and discussed. (See an one page example of the checklist in annexure A).

3.6.2 The interview

The interview is a method of data collection in which the person (an interviewer) asks questions to another person (the respondent) (Polit et al 1995:705).

An interview can be conducted by meeting the respondent face-to-face or through telephone interview. The unstructured approach is when the researcher does not have a set of prepared questions that must be asked in a specific order or worded in a given way. In a structured interview the researcher always operates by making use of a written,

prepared research instrument which is known as the interview schedule. The interview may either be recorded on an audio tape recorder or the answers to the questions may be written down by the interviewer (Polit et al 1995:333-334). By making use of the same prepared interview schedule in each interview many of the disadvantages of an interview could be excluded, such as researcher's bias and asking leading or loaded questions.

The researcher decided to use face-to-face personal interviews in the research because it was convenient to collect the data immediately after the observation. Respondents were asked questions and their answers to these questions were written down by the researcher verbatim.

3.7 RESEARCH INSTRUMENT

The specific tool, often a questionnaire, interview guide or checklist, used to measure the variables in a study is called a research instrument (Spradley & Allender 1996:604).

In this research a checklist, as well as a short structured interview schedule were used to collect data.

3.7.1 The checklist

The checklist was selected as:

- it is a quick and uncomplicated method of obtaining a broad range of new data
- it is easy to complete and covers all the required data
- it is a relatively inexpensive method of obtaining data
- respondents could remain anonymous (no names have been recorded on the checklists)
- it was one of the easiest tools to test for reliability and validity

A disadvantage of the checklist is that questions cannot be asked, as it is not possible to plan for certain questions to be asked during the observation. An attempt to overcome this

was made in cooperation with the medical practitioner by writing down the questions that were asked to the participant during the procedure. These questions were asked to get clarity on certain aspects. The checklist was kept as short as possible but had to include all aspects required to manage a patient with hypertension. Hypertension was chosen because as the literature have indicated, research has found that PHC nurses were able to manage minor ailments, but not more serious conditions such as diabetes mellitus and hypertension (Louwagie & Bachman 2002:32-37). Another reason for choosing hypertension is that PHC nurses are required to be able to monitor the health status of the hypertensive patient, and should be able to recognise any involvement of other organs as hypertension affects many organs, such as eyes, kidneys, heart and so forth. To ensure that the checklist was not too lengthy and difficult to manage it was not coded for analysis by computer at that stage. The coding was done on another copy and the findings entered onto the computer according to the allocated codes (refer to annexure A). The checklist consisted of items which followed the preferred systematic way in which a patient should be managed (Polit & Hungler 1995:243). These items included all the summative outcomes a diplomate should be able to attain to be considered competent enough to deliver an effective PHC service (See one page of this instrument in annexure A). The main categories of the outcomes on the checklist were in line with the research questions and objectives of this research and have been discussed in more detail in the next section.

3.7.1.1 Format of the checklist

As mentioned before, the initial checklist was obtained from another training institution who also trained PHC diplomates in a decentralised manner. This checklist has been in use for some time by this particular tertiary training institution and has been tested on a number of occasions. This institution wished to stay anonymous. It has been adapted with the cooperation of the co-researcher who was involved in the observation process as well as after consulting text books on the subject and input from the supervisors (Bickley & Szilagyi 2003; Fuller & Schaller-Ayers 2000; Seidel 1998). It was decided to include certain questions to the participants to obtain the reasons why certain steps were taken. These questions were after the procedure.

The checklist consisted of the following main aspects:

Section B1

Consisted of items which covered the evaluation of the taking of the history of the patient.

Section B2

This section consisted of items which covered the evaluation of the identifying risk factors in the patients' history and family history.

Section C

This section consisted of items which covered the evaluation of the side room examination.

Section D

This section consisted of items which covered the evaluation of the physical examination of the patient.

Section E

Consisted of items related to the evaluation of the skills involved in executing a physical examination and the use of equipment.

Section F

This section consisted of items which evaluated the participant's ability to make a diagnosis.

Section G

This section consisted of items which were used to evaluate the competence of the participants in the referral of the patient.

Section H

This section consisted of items which evaluated the participant's ability to prescribe treatment for the patient.

Section I

This section consisted of items which evaluated participants' ability to provide health education to the patient.

Section J

This section included items which were used to assess the abilities of the participants in the writing of clinical notes.

Section K

This section consisted of items that evaluated the participant's professional conduct.

The checklist consisted of the outcomes expected of the diplomate of the PHC training programme in the management of a patient with high blood pressure listed on the left side of the checklist and space for the rating scale for rating the behaviour on the right. The rates provided on the checklist were 1-4 and each rate was defined at the top of each page of the checklist.

The use of the checklist was demanding as it required constant concentration of the observers as the recording task was continuous. The observers also discussed the results and made a final decision on the findings. Incidentally, the results of the two researchers, never differed (see annexure A).

3.7.2 The interview schedule

An interview schedule is a list of prepared questions the researcher uses during an interview (Polit & Hungler 1995:334). Participants are then asked to respond to the same questions in the same order, as they have all the same options for their responses (closed-ended questions).

3.7.2.1 Format of the interview schedule

According to Polit and Hungler (1995:334-336), structured interview schedules can be composed of open and closed-ended questions.

Open questions allow respondents to respond in their own words. Enough space was allowed for the researcher to write the exact words of the participant in answering one open question. The interview schedule also contained some closed-ended questions which provided fixed alternatives and the participants were required to choose the answer which would be the most suitable according to their opinion.

Both open and closed ended questions have their strengths and weaknesses. Closed-ended questions are usually difficult to construct but easy to analyse. The closed-ended questions in this research were analysed by computer. Open questions allow for a richer and fuller response or perspective on the topic of interest. It is however difficult to analyse. The open questions have to be categorised by the researcher by finding commonalities. This process takes considerable time and skill. Fortunately there was only one open question in the interview schedule (Polit & Hungler 1995:335).

The interview schedule consisted of the following:

- questions on the biographical information of the participants.
- questions to determine the opinion of the diplomates on their training programme.
- questions to determine what their needs for further training were.

3.7.3 Pre-testing of the research instruments

Pre-testing involves determining the feasibility of using a given instrument in a formal study. It provides an opportunity to try out the technique or instructions that will be used with an instrument, especially if it has never been used with a specific population (Brink & Wood 1998:259).

In this study pre-testing of the checklist was done by conducting two observations of diplomates who were not part of the main study. This was done to

- determine the weakness in the organisation and administration of the research instrument
- enable the researcher to make any improvements and corrections before embarking on the actual data collection
- ascertain the clarity and reduce any ambiguity in the questions
- establish the validity of the content of the instrument

The following changes had to be made to the interview schedule:

- Item 3 had to be deleted as it made provision for all the clinics, and it has been decided to conduct the observations only in the Tintswalo hospital's outpatient department. The numbers of the other items then had to be changed accordingly.
- The questions of item B2.2 and B2.3 had to be divided into B2.2 and B2.3 as well as B2.3 and B2.4 to determine the number of cigarettes smoked per day (item B2.3) or how much alcohol consumed by patients.
- Typing errors were corrected.

The interview schedule was not pre-tested as it was not the key research instrument in this research.

3.8 RELIABILITY AND VALIDITY OF THE RESEARCH

It is important for quantitative data to be as precise and objective as possible. For this reason numerical values are attributed to certain attributes. It is then possible to establish how much of an attribute is present by measuring it. This process removes guesswork in gathering information. The two main quantitative measures which have been applied for assessing its quality have been discussed below.

The *reliability* of an instrument refers to the degree of consistency with which instrument measures the attributes (Polit & Hungler 1995:411). According to Fain (2004:128), reliability refers to the consistency with which an instrument or test measures what it is supposed to measure. According to Polit et al (2001:305), reliability is a major criterion for assessing the quality of quantitative research. For research to be reliable the research instrument which is used should accurately measure the true attributes. Three aspects of reliability are of interest to the researcher collecting quantitative data, namely stability, internal consistency and equivalence.

As time could affect the *stability* of a measure when data is collected from people on separate occasions the researcher took the following steps to guard against this possibility.

- Observations were conducted over a short period of time. The patients used were known (to the researcher only) hypertension patients selected from the female and male medical wards of the hospital and the outpatients department of the hospital. The observations were conducted in the outpatients department of the Tintswalo hospital. The data were collected on the dates as indicated in table 3.1 and three diplomates were observed per day.
- The participants were also asked not to inform any of the other participants about the evaluation process and what they were asked to do (Polit & Hungler 1995:199).
- The effect of being observed (reactivity of the observed) could not be negated completely as the participants were aware of the fact that they were being observed. The researcher hoped, that the fact that the participants knew that they themselves were not evaluated but that the research was done by the researcher for her own academic development, would counteract the Hawthorn effect to a certain extent.
- To ensure *internal consistency* the researcher made use of an instrument which has been used by another training institution, consulted text books on the subject, made sure that the wording of the checklist and interview schedule was clear by consulting experts in the PHC field and by pre-testing the research instruments. Questions and items were clearly worded and discussed with experts to ensure that it would be interpreted correctly.

- A possible weakness of direct observation is the risk for observer error. The degree of error can be assessed or counteracted by making use of two or more trained observers. The researcher had the services of a medical practitioner to simultaneously observe the participant as s/he managed a patient. When there is congruence in the scores of two independent observers, the scores are likely to be accurate and reliable (Polit et al 2001:302).
- The participants were interviewed directly after the observation using the prepared interview schedule. The responses of the participants were noted *verbatim.*

Validity refers to the degree to which an instrument measures what it is intended to measure (Polit et al 2001:735). According to Fain (2004:131), validity is the accuracy with which an instrument measures what it is supposed to measure. Like reliability validity has a number of aspects and assessment approaches, such as face validity, content validity, criterion-validity and construct validity.

Face validity refers to whether the research instruments look as though it is measuring the appropriate construct. The researcher as well as the supervisors and the co-supervisor were of the opinion that the research instruments used in this research were on face value, valid. This judgment was also based on their expert knowledge of the subject as well as the knowledge that the instrument (checklist) has been in use in another training institution for some time, and has been improved over time.

The research instrument (checklist) and interview schedule were also judged for content validity. This judgment was also based on the fact that the instrument has been in use and tested, and found be valid for the content in should test. No other test for validity of the research instruments was conducted. The research instruments (the checklist and the interview schedule) were, however, also tested and corrected where necessary before the main study.

3.9 ETHICAL CONSIDERATION

In observance of the ethical constraints, underlying the undertaking of a research project, the following aspects were considered.

3.9.1 Permission to collect data

- For this study, permission to collect data was sought and obtained from the local hospital where the one year decentralised PHC training programme was offered and the Limpopo Provincial Research Committee; Department of Health and Welfare (training section), as well as the Ethics Committee of the Department of Health Studies, Unisa. The researcher and colleagues were certain that the results of this research would put the training institutions in a negative light. This was due to the belief that the decentralised training system was not preparing the diplomates properly and that the diplomates would not manage patient as trained due to the conditions and problems which prevail in PHC clinics. As a result of this belief the researcher promised not to make the name of the responsible institutions known. As the outcome of the research reflected positively on the effectiveness of the training programme, the researcher returned to these authorities and requested permission to disclose the names of the institutions (see annexure C).

The researcher also observed the following principles needed in the research process:

3.9.2 The right to self-determination

The right to self-determination is based on the principle of respect for persons, and indicates that humans are capable of controlling their own destiny (Burns & Grove 1999:158).

In this research the participants (diplomates and patients) were treated as “autonomous agents” who have a freedom to conduct their lives as they choose without external controls namely:

- Informed about the research study.
- Allowed to choose to participate or not in this study.
- Allowed to withdraw from the study without fear of any penalty.
- No coercion or deception was practised in the research as all participants were fully informed.
- Information was being given to participants in English, Tsonga, Pedi or Venda depending on the preferred language.

3.9.3 Right to privacy

Privacy is the freedom an individual has to determine the time extent, and general circumstances under which private information will be shared with or withheld from others (Burns & Grove 1999.162).

In this research the participants' privacy was protected in that the patients were interviewed and examined in an examination room in the presence of only the two observers. Both the diplomates and patients were informed that data gathered would only be shared with those involved in the research.

3.9.4 The right to confidentiality and anonymity

Confidentiality is the management of private information shared by a subject. Anonymity is the right to "assume that the data collected will be kept confidential" (Burns & Grove 1999:163).

In this research anonymity of the subjects was maintained by the fact that the names of the participants did not appear on the checklist and the names of the patients were not written on any of the reports compiled by the diplomates for this research.

3.9.5 The right to fair treatment

The right to fair treatment is based on the principle of justice that states that people should be fairly treated and should receive what is due to them or owned by them (Burns & Grove 1999:165).

In this research the researcher ensured fair treatment by the following:

- Participants were being treated fairly and carefully.
- The researcher had a high regard for any harm or discomfort that may be experienced by participants, and therefore made a special attempt to ensure that both the diplomates and patients were comfortable. The research made sure that the research process did not lengthen there visit to the health services. They were therefore were processed quickly, and received their medicine promptly, after the evaluation of the diplomates.

3.9.6 The right to protection from discomfort and harm

This right is based on the ethical principle of beneficence, which states that one should do good and above all do no harm (Burns & Grove 1999:166). The researcher took special precautions to ensure that the participants did not come to any harm. Special precautions were taken not to link any of the diplomates to the findings of this research, particularly if it would have a negative outcome.

The researcher also took special steps to ensure that the patients were immediately after the data collection process, re-assigned to a health care professional who then finalised the management of the patient and saw to it that the patient received the prescribed treatment.

3.9.7 The informed consent

Informed consent is the prospective participants' agreement to participate in the study as a subject. Informing is the transmission of essential ideas and content from the researcher to the prospective participants (Burns & Grove 1999:168).

In this research every prospective participant was given the opportunity to choose whether to participate in the research or not. The following information was given to the participant namely:

- The purpose of the research.
- The objectives of the research.
- The duration of the study.
- The type of participation expected from the subjects.
- How results will be published.
- How confidentiality, anonymity and privacy will be ensured.
- The identity and qualifications of the researcher, co-researcher and supervisors of the dissertation (see annexure D)

3.9.8 Research benefits

The participants and patients were informed that they would receive no monetary benefits from the study.

3.10 SUMMARY OF CHAPTER 3

Evaluation of a training programme is important to ensure quality training of the students. This chapter highlighted the methodology that was adopted to complete this research. A quantitative, exploratory, descriptive, contextual research design was chosen and a checklist and short interview schedule were used during the data collection process. The ways in which the research instrument was tested for reliability and validity was discussed as well as the way in which the observation of the participants, while they managed patients, were executed.

As an observational research method always elicit serious ethical problems the steps taken to ensure the correct and ethical management of all involved were also outlined in this chapter.

An analysis of data collected from the completed checklists and interview schedules have been presented and discussed in chapter 4.

CHAPTER 4

DATA ANALYSIS AND INTERPRETATION

4.1 INTRODUCTION

The previous chapter highlighted the methodology that was adopted to complete this research. A quantitative, exploratory, descriptive, contextual research design was discussed as well as the research instruments used, namely the checklist and short interview schedule.

The main purpose of this chapter is to discuss and interpret the findings of this research. This chapter presents the data obtained from 12 analysed interview schedules from PHC nurse diplomates trained in 2004, and 12 checklists used for the evaluation of the same participants during the observations, while they managed patients with hypertension. The respondents were all from the clinics in the Limpopo province. The response rate was 100% for both the instruments.

The data from the checklist and interview schedule have been presented in 13 sections:

Section A

This section dealt with the biographical data from the participants of the research and was part of the interview schedule.

Section B1

This section consisted of items used to evaluate the taking of the patient's history during the observation and was part of the checklist.

Section B2

This section consisted of items used to evaluate the participants' competence in collecting the patients' history of risk factors in the personal health history and that of the family.

Section C

This section consisted of items used to evaluate the participant while doing the side room investigations.

Section D

Section D consisted of items which were used during the observation that evaluated the participants while they conducted the physical examination on the patient.

Section E

Consisted of items which were used during the observation to assess how the participants executed the examination techniques.

Section F

Section F consisted of items which were used during the observation to assess the participants' competence in making diagnosis.

Section G

Consisted of items which were used during the observation to assess the participants' competence related to the referral of the patient.

Section H

This section included items which were used during the observation that assessed the participants' ability to prescribe treatment for the patient.

Section I

This section included items which were used during the observation that assessed the abilities of the participants related to the providing of health education to the patient.

Section J

This section included items which were used during the observation that assessed the abilities of the participants in the writing of clinical notes.

Section K

This section analysed the assessment of the professional conduct of the participant while managing the patient.

Section L

This section covered the questions asked during the interview on the opinion of the diplomates on the PHC training programme.

Section M

Contained the analysis of the open question asked to the participants of this research.

4.2 RESEARCH OBJECTIVES AND RESEARCH QUESTIONS

As mentioned in chapter 1 and 3 one way of assessing the effectiveness of a training programme is by evaluating the *outcomes of the programme.* It is for this reason that the formulated research questions and research objectives of this research, which were in fact the outcomes of this decentralised training programme, formed the conceptual framework of the research and have been repeated again.

The aim of the research was to determine how effective the training of the diplomates of the one year decentralised training programme was. This could be **demonstrated** to the extent they have *attained the summative outcomes of the training programme*. Although this was done before completion of the training programme, the researcher decided to determine whether these participants could be considered competent when confronted with conditions in the real situation, without the support and guidance of trained personnel in the PHC clinic. During the observation process the researchers attempted to determine how effective the participants were in executing the tasks listed below on specially selected patients with hypertension. The participants were observed whilst they were executing the following tasks:

- Take a comprehensive history of a patient.
- Conduct a physical examination on a patient appropriate to his/her condition.
- Make a diagnosis based on the findings of the history and physical examination.
- Prescribe the correct treatment for a patient.
- Refer a patient when necessary.
- Give appropriate health education to a patient.
- Write clinical notes.

During the interview the following questions were asked:

- How did the diplomates in PHC experience their training?
- Do they feel confident that they have the necessary knowledge and skills to be able to independently render an effective PHC service?
- What problems have they experienced?

The following objectives were also formulated:

- The researcher will make recommendations to improve the decentralised training programme.
- The researcher will make recommendations for further research.

4.3 DISCUSSION OF THE FINDINGS OF THE CHECKLIST

Although Section A discussed below, was part of the interview schedule it has been discussed here for better clarity of the research findings.

4.3.1 Section A: Biographical data

This section dealt with the biographical data from the trained PHC nurses.

Item A1: Age

The age distribution of the respondents ranged from 30 to 52 years. As indicated in pie diagram figure 4.1, 50,0% (N=6) of the participants were between the ages 40 and 44 year of age, the second largest group, namely 25,0% (N=3) were between the ages 45 and 47 years of age. Two (16,7%) of the participants were between 30 and 34 years of age and only one participant (8,3%) was between 50 and 54 years of age. Unfortunately the questions in the interview schedule did not ask how many years of nursing experience these participants had, but it could be deduced that they must have had some previous nursing experience.

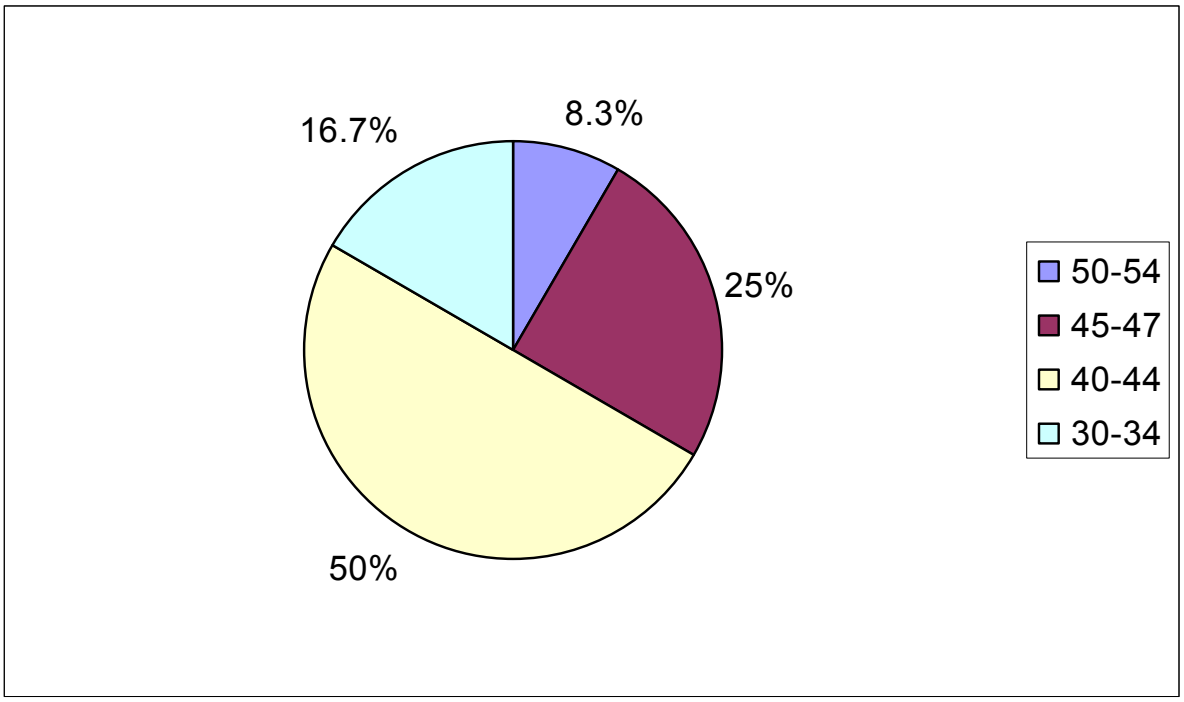

Figure 4.1: Age distribution of participants (N=12)

Item A.2: Gender

Most of the participants, namely 83,3% (N=10) were female and 16,0% percent (N=2) of the participants were male. This correlates also with general gender profile of nurses in South Africa where only 6,8% are male (SANC statistics 2002).

Item A.3: Clinics where experiential learning was done

The analysis of this item indicated that all the clinics in the Limpopo province were involved in the training of the 12 participants, namely Bohlabela, Waterberg, Sekhukhune, Vhembe, Capricorn and Mopani and that the participants only received their training in one clinic and did not move around. Two participants of each of the six districts were included in the sample.

4.3.2 Section B: Specific outcome 1: Obtain the health history

Item B1.1 Biographical information of the patient

All the participants (N=12) noted the patient's biographical data in a competent way.

Item B1.2 Relevant social history

Analysis of this item indicated that 91,7% (N=11) participants noted relevant social history and 8,3% (N=1) of the respondents were considered not to be competent in this item.

Item B1.3 Main complaint

The findings of this item indicated that all the respondents (100,0%; N=12) noted the correct information on the main complaint of the patient. Participants were only considered to be competent in this item if they asked enough and relevant questions about the main complaint, such as the severity, when it started, what makes it worse, or what improves it, and so forth. As explained in chapter 3 the participants were not informed of the patient's diagnosis and they did not have the patient's file to their disposal.

Item B1.4 Previous medical history

Most of the participants, namely 83,3% (N=10) noted relevant previous medical history of the patient, 8,3% (N=1) of the participants did not execute this item competently and 8,3% (N=1) did not ask any questions on the previous history of the patient. This indicates that the majority of the participants were competent in noting the patient's previous medical history. One would however hope that all PHC nurses always obtain the relevant previous medical history of a patient.

Item B1.5 Risk factors, such as personal and family history of artherio-sclerosis

Just more than half of the participants, namely 58,3 (N=7) were competent in noting family or personal history of artherio-sclerosis of the patient, while 41,7% (N=5) were not competent. This indicates that almost just as many participants knew that artherio-sclerosis could be indicative of a complication of hypertension in other family members of the participants, than those who did not know and did not ask the right question. If there is a prevalence of artherio-sclerosis in the family, the patient could also have a high risk of developing it. Artherio-scleosis is a complication of long standing and uncontrolled hypertension and lipidaemia.

Item B1.6 Heart disease

Most of the participants, namely 83,3% (N=10) were competent as they noted the family or personal history of heart disease, while 16,7%(N=2) were not competent, as they did not ask the correct questions to obtain information on the family history of heart disease. This indicates that the majority of the participants could be considered to be competent in noting family history of heart disease. As heart disease tend to run in families the patient could also be at high risk of developing heart disease.

Item B1.7 Obesity

Most of the participants, 66,7% (N=8) were not competent in noting family history of obesity or noted that the patient him/herself was obese, while only 33,3% (N=4) noted this and therefore considered to be competent. This could mean that the participants either did not realise that obesity could cause hypertension or that obesity in the family was of any importance. Eating habits in families are often the same. Should one then come across obesity in families it would often be difficult to change those habits as it has been entrenched in the family's way of eating.

Item B1.8 Diabetes Mellitus

A family or personal history of Diabetes Mellitus (DM) was either not considered by most of the participants (66,7%; N=8) as an important contributing factor to hypertension or forgot to obtain this information of the patient. Only 33,3% (N=4) of the participants could be considered competent, as they did ask the patient about the prevalence of this condition in the family or whether the patient had DM. This is rather disturbing as this is important in the monitoring of the patient with hypertension, as most patients with hypertension also tend to develop DM in later life. It is however important to note that the participant did not at this stage make a final diagnosis and therefore did not make the connection to hypertension. It is, however, **always** important to obtain this information from any patient.

Item B1.9 Kidney problems

The majority of the participants, namely 75,0% (N=9) were not considered to be competent as they did not note a family or personal history of kidney problems, while only 25,0% (N=3) did ask the patient about family members with kidney problems. As this is also an important question to ask any patient, it is rather disturbing that these participants did not obtain this information. In the case of hypertensive patients, any defect in their kidneys due to a familial condition would complicate the treatment of hypertension.

Item B1.10 Hypertension

All the participants (100%; N=121) asked the patients about a family or personal history of hypertension.

Item B1.11 Pregnancy

Most of the participants 91,7% (N=11) dealt with male patients and therefore did not ask the patient whether the patient they managed was pregnant. The one participant who managed a female patient did correctly ask the patient whether she was pregnant.

According to Bickley and Szilagui (2003:5), the following conditions should be reviewed as part of the family history during the history taking of a patient, namely “hypertension, coronary artery disease, elevated cholesterol levels, stroke, diabetes, thyroid or renal disease, cancer (specific type), arthritis, tuberculosis, asthma of lung disease, headache, seizure disorder, mental illness, suicide, alcohol of drug addition, and allergies”. In a patient with hypertension one would specifically like to know of a history of the conditions included in the checklist, as the patient could also have a risk of developing these conditions.

The majority of the participants could be considered to be fairly competent in this section, although some results were very disappointing. Two participants did not collect data on the previous medical history of a patient which is a serious mistake.

4.3.3 Section B2: Specific outcome 1: Take the history of a patient of the possible risk factors in life style, and possible complications

The manner in which the participant noted the presence of aspects of her/his life style was also assessed such as:

Item B2.1 Stress

Most of the participants could be considered competent with this item as 75,0% (N=9) noted the presence of stress, the rest of the participants (25,0%; N=3) were not competent as they did not ask the patients about stressors in their lives.

Item B2.2 Smoking habits of the patient

All the participants asked the patients about their smoking habits.

Item B2.3 Number of cigarettes smoked per day

All the participants asked the patients how many cigarettes they smoked per day.

Item B2.4 Drinking habits of the patient

The majority of the participants, namely 75,0% (N=9) asked the patients about their drinking habits, and could therefore be considered *competent* in this item.

Item B2.5: Number of glasses of alcohol consumed per day.

All the abovementioned participants 75,0% (N=9) who did enquire about the patient's drinking habits also asked how much alcohol the patient consumed per day.

Item B2.6: Excessive salt in diet

Most of the participants, namely 75,0% (N=9) did not enquire whether excessive salt was used in the diet of the patients, while only 25,0%(N=3) was competent in that they did ask the patient about his/her diet. This indicates that majority of participants *were not competent* in noting that the patient's diet included excessive salt in his/her diet.

The following items covered the manner in which the participant noted information on possible complications of hypertension. It should be noted that the participants were only considered to be competent in the items, if they did not only ask about the presence of the possible complications but also the nature of it, duration and severity to name but a few features. The complications relevant to hypertension were:

Item B2.7 Edema

All the participants 100,0% (N=12) asked the patients whether s/he develops edema. The participants were only considered to be competent as indicated above but specifically asked about pedal edema as it may be an indication of heart disease developed due to uncontrolled hypertension.

Item B2.8 Fatigue

All the participants 100,0% (N=12) asked the patients whether they experience fatigue.

Item B2.9 Shortness of breath.

All the participants 100,0% (N=12) noted a possible complication of hypertension which is shortness of breath. Shortness of breath could also be an indication of left heart failure due to uncontrolled hypertension.

Item B2.10 Visual disturbance

Almost all the participants could be considered competent in this item as 83,3% (N=10) of the participants asked the patient about the complication of hypertension namely visual disturbances. Visual disturbances could be a sign of retinal involvement due to uncontrolled hypertension.

Item B2.11 Headaches

The majority of the participants 91,3% (N=11) did ask the patients about the presence of headache. Headache is however not a very specific complication of hypertension.

Item B2.12 Dizziness

Only half of the participants could be considered to be competent as 50,0% (N=6) asked the patient whether s/he experiences dizziness from time-to-time. This is very disturbing, seeing that dizziness in a patient with hypertension is an emergency. Some of these patients were already admitted in the male and female wards for hypertension. This fact was of course not known by the participants.

Item B2.13 Leg ulcers

Only 16,7% (N=2) of the participants were considered to be competent as they asked the patient about the presence of leg ulcers. The presence of leg ulcers is a sign of insufficiency of the cardio-vascular system an important complication also of DM.

Item B2.14 Oliguria

Again the majority 91,3% (N=11) of the participants did not enquire whether the patient passed less urine than usual. The participants were therefore not considered to be competent in this item. Although it is often difficult for patients to determine how much urine they have passed over a twenty-four hour period it is important for nurses to ask these questions, as it may be an indication of kidney failure, one of the serious complications of uncontrolled hypertension and DM.

Item B2.15 Polyuria

Here again almost all the participants, namely 91,3% (N=11) did not ask the patient whether s/he passed more urine than before. Polyuria could be one of the first signs of DM which would complicate the treatment of hypertension.

Item B2.16 Polydipsia

In this case again the majority of the participants did not ask the patient whether s/he is often thirsty and had to drink a lot of water, as 91,3% (N=11) of the participants did not enquire about the presence of polydipsia. Polydipsia is also one of the first signs of DM.

Item B2.17 Nocturia

The majority of the participants namely 83,3% (N=10) were considered to be incompetent. Only 16,7% (N=2) of the participants could be considered to be competent in this item as they remembered to ask the patient whether s/he had to urinate often during the night. This is also an early sign of DM.

Item B2.18 Chest pain

Almost all the participants, namely 91,9% (N=11) were considered to be competent in this item because they asked the patient whether s/he experienced chest pains from time to time, the nature, severity and so forth of the pain. Longstanding hypertension, particular uncontrolled hypertension may lead to heart conditions.

Item B2.19 Calf pain

Unfortunately none of the 12 participants enquired about calf pains in the patient, and not one of them were therefore considered to be competent. Calf pain could be indicative of heart problems with the decline in blood circulation to the extremities.

Item B2.20 Gout

Again, most of the participants were not competent in this item as 83,3% (N=10) did not properly enquire about the presence of gout. Gout together with obesity, and DM, high cholesterol levels is often seen in a patient with hypertension.

Item B2.21 Other

None of the participants probed for any other risk factors in the patient's history.

The manner in which the participants listed relevant differential diagnosis deduced from the history of the patient was also assessed.

Item B2.22 Differential diagnosis

Most of the participants 83,3% (N=10) were considered by the researchers to be competent as they listed relevant differential diagnosis, which also included hypertension, deducted from the history of the patient. These participants could also indicate which aspect of the patients' history led them to the differential diagnosis. The two participants (16,7%) who were considered to be incompetent in this item also had to be asked to list differential diagnosis. (See list of questions in chapter 3).

The participants were only 100% competent in 9 items which were related to the taking of the history of the patient. The participants could be considered to be fairly competent as they were only considered to be between 91,7% and 75,0% competent in 13 items related to the history taking of the patient. The participants were considered to be incompetent in 5 items as they were only considered to be 58,3 and 25,0% competent in these items.

The following list contains the findings of the history taking of the patients and the competency of the participants.

All the participants were competent in the following elements of the history taking process:

- Biographical history 100,0%
- Main complaint 100,0%
- Hypertension 100,0%
- Pregnancy 100,0%
- Smoking 100%

- Edema 100%
- Fatigue 100%
- Shortness of breath 100%
- Calf pain 100,0%

The participants could be considered to be fairly competent in the following items which were also related to the taking of the history of the patient:

- Headaches 91,7%
- Oliguria 91,3%
- Polyuria 91,3%
- Polydipsia 91,3%
- Chest pain 91,7%
- Differential diagnosis 83,3%
- Visual disturbances 83,3%
- Nocturia 83,3%
- Gout 83,3%
- Stress 75,0%
- Alcohol consumption 75,0%
- Excessive salt in diet 75,0%
- Leg ulcers 75,0%

In the following items the participants were considered to be incompetent:

- Artherio-sclerosis 58,3%
- Dizziness 50,0%
- Obesity 33,3%
- DM 33,3%
- Kidney problems 25,0%

When these findings were analysed **per participants** the following were revealed:

Table 4:1 The number of items in which the participants were competent and incompetent in the history taking of a patient (N=12)

Number of allocated to the participant	First number = competent number of items Second number (...) = incompetent number of items
No 1	16; (16)
No 2	19; (13)
No 3	20; (12)
No 4	22; (10)
No 5	23; (9)
No 6	24; (8)
No 7	24; (8)
No 8	26; (6)
No 9	21; (11)
No 10	27; (5)
No 11	19; (13)
No 12	23; (9)
Total of 12 participants	

As indicated in table 4.1 the participants of this research could be considered to be fairly competent in the taking of a patient's history, although it was not completely satisfactorily. This is judged by the fact that they obtained an average mark for the overall items, but this is not satisfactorily as a PHC nurse should be competent in history taking, as it is very important to obtain a correct and comprehensive, but focused history of a patient. Only three participants could be considered to be competent. These were participants numbers 6,7, 8 and 10, in the above table.

4.3.4 Section C: Specific outcome 2: Do side room investigations

The manner in which relevant side room investigations were done by the participants was assessed.

Item C.1 Urine dipstick-glucose

Not all the participants did an urine dipstick test to test for glucose, therefore 75,5% (N=9) were considered by the researchers to be competent. This is a very disturbing finding as it is one of the most basic side room investigations (urine tests) which are done by nurses from the very first day of their training. It can also be influenced by the fact that in some clinics and health centres they still have a vital signs stations, where all vital signs and side room investigations are done by another nurse, and that these participants did not deem it there responsibility to do it before the physical examination. They should however have enquired about the results as they received no record of the patient.

Item C.2 Urine dipstick-protein

The same participants who have done the previous urine dipstick test, have also done the urine dipstick test for protein. The same reasons mentioned for the lack of not having a 100% competency rate in the previous item, is also relevant here.

Item C.3 Urine dipstick-blood.

The majority of the participants were not considered to be competent as less than half of the participants 41,7% (N=5) did in fact test for blood in the urine and were therefore considered to be competent.

Item C.4 Blood pressure

All the participants, namely 100,0% (N=12) were considered to be competent as they all took the patients' blood pressure themselves, executed it correctly, recorded and interpreted the reading correctly. Although some clinics and health centres have vital signs stations, where all vital signs and side room investigations are done by another nurse, these participants checked the patient's blood pressure themselves.

Item C.5 Weight

Only 8,3% (N=1) of the participants did not weigh the patients they managed themselves. Almost all the participants were therefore considered to be competent in this item.

Item C.6: Testing of patient's vision

A third of the participants, namely 33,3% (N=4) **did not test** the patients vision. This is in line with the finding of Item B2.10 where all the participants asked the patients about the loss of vision. Eight of the patients indicated that their vision is failing, and eight of the participants tested the patients' vision. All the participants are therefore considered to be competent as they reacted on the patients symptoms and tested the eyes of those patients who complained about the decline in their vision.

Table 4.2 Results of the side room investigations (N=12)

Investigation	Percentage and number of participant considered to be competent	Percentage and number of participant considered to be incompetent
Urine dipstick/glucose	75,0% (N=9)	25,0% (N=3)
Urine dipstick/protein	75,0% (N=9)	25,0% (N=3)
Urine dipstick/blood	41,7% (N=5)	58,3% (N=7)
Blood pressure	100,0% (N=121)	None
Weight	91,7% (N=11)	8,3% (N=1)
Vision	66,7% (N=8)	33,3% (N=4)
Average	75,0% (N=9)	25,0% (N=3)

In the side room investigations the participants could be considered to be competent as they did most of the side room investigations. The items, in which some were considered to be incompetent, are the urine tests. The reason for this could be that they are used to the arrangement that another nurse would test the urine before the patients came to them. They should however have the results of the urine tests before they commence with the examination of the patient.

Participants number 2, 6, 8 and 10 completed all the side room investigations and were therefore considered to be very competent. The others mostly omitted to do the urine tests, but could be considered to be competent.

4.3.5 Section D: Specific outcome 3: Conduct focused physical examination

In this section the manner in which certain aspects of the physical examinations was executed by the participants were assessed. The participants could have examined and observed many other aspects of the physical examination, but the researchers were particularly interested in the items listed below, as it is important in the monitoring of a patient with hypertension.

Item D.1 Tested JVP

All the participants were considered to be competent as 100,0% (N=12) tested the jugular venous pressure (JVP) of the patient. This is done when the neck of the patient is examined.

Item D.2 Observe nails

All the participants 100,0% (N=12) were competent as they observed the nails of the patient for cyanoses or clubbing of the nails during physical examination, which is an indication of *inter alia* a heart condition that could be due to controlled hypertension.

Item D.3 Pedal edema

All the participants, namely 100,0% (N=12) were competent observing for pedal edema during the physical examination. It is important that this should be done in any elderly patient or a patient with a risk of developing heart failure. It is therefore important that all PHC nurses test for pedal edema in patients with hypertension as a positive finding may be a sign of uncontrolled hypertension and subsequent development of heart failure.

Item D.4 Examine eyes - retinal arteries and veins

Only two (16,7%) of the participants used the ophthalmoscope to look at the retinas of the eyes of the patients. None of the participants could be considered to be competent in this item, as the two participants who attempted to examine the retina of the eyes of the patient

also did not execute this examination correctly (see also the discussion at the end of this section).

Item D.5 Examine pulses

All the participants, namely 100,0% (N=12) tested the pulses of the patients and noted the rate, volume and rhythms, to the satisfaction of the researchers.

Item D.6 Cardio-vascular system, particularly the apex beat

All the participants, namely 100,0% (N=12) were competent in examining the cardio-vascular system by listening to the heart, various valve sounds, testing for heaving and by determining the apex beat for a possible displacement. This is important as the displacement of the apex beat in particular could be an indication of an enlarged heart, which is a complication of longstanding and uncontrolled hypertension.

Item D.7 Respiratory system

All the participants, namely 100,0% (N=12) examined the respiratory system of the patients they managed. All the participants were therefore considered to be competent in this item as they also indicated that they have been listening for crepitation, which could be a sign of heart failure, due to uncontrolled hypertension.

Item D.8 Abdomen

All the respondents, namely 100,0% (N=12) were considered to be competent as they examined the abdomen, and examined the liver in particular to determine whether it was enlarged. An enlarged liver is an indication of right heart failure which is one of the complications of long standing and uncontrolled hypertension (SB Primary Clinical Care 2001:138).

In this section all the participants were considered to be competent in examining the cardio-vascular system particularly the JVP, apex beat, heaving and various pulses. All the participants were considered to be competent in the examination of the respiratory system and abdomen. The participants were also competent in observing for edema and observed the nails for cyanosis and clubbing. Most of the participants did not use the ophthalmoscope to inspect the retinas of the patients' eyes. It could be that they did not have much experience in this examination and the use of the ophthalmoscope, or that they did not have an ophthalmoscope in the clinics. See the discussion of item E.

In this item participant numbers 8 and 9 could be considered to be very competent as these participants knew what examinations should be done on a patient with hypertension. The other participants have done all but the examination of the retinas of the patients' eyes.

4.3.6 Section E: Specific outcome 4: Execute examination techniques

Items related to the manner in which the participants have demonstrated skills involved in conducting a physical examination, by executing examination techniques correctly and the appropriate use of instruments. The executions of the following examination techniques were assessed:

Item E.1 Inspection

All the participants (100,%; N=12) were considered by the two researchers to be competent as they have inspected the patients they managed correctly.

Item E.2 Palpation

All the participants (100,0%; N=12) were considered to be competent as they demonstrated that they have mastered the technique of deep and shallow palpation of the patients during the physical examination.

Item E.3 Percussion

All 12 (100,0%) participants were competent as they percussed the chests and abdomens of the patients they managed correctly.

Item E.4 Auscultation

All twelve (100%) participants were competent in executing examination skills such as auscultation during physical examination as they auscultated the patients' chests and abdomens with the stethoscope correctly.

The following item assessed the participants' skills in using the equipment correctly during the physical examination of the patients they managed. The equipment that had to be used appropriately during the physical examination has been listed below.

Item E.5 Baumanometer

All the participants who used the Baumanometer, used it correctly. This finding could be expected, as all the nurses should be able to use the Baumanometer correctly when taking a patients' blood pressure. This finding is in line with the finding of item C4 where all the participants took the blood pressure of the patients correctly, interpreted and noted the findings correctly.

Item E.6 Stethoscope

All the participants were considered to be competent as 100,0% (N=12) used the stethoscope correctly during the physical examination.

Item E.7 Ophthalmoscope

The majority of the participants, namely 83,3% (N=10) of the sample did not use the ophthalmoscope at all. The two (16,7%) participants who used the ophthalmoscope however was not considered to execute the examination competently. This finding is in line with the finding in D.4 were it was found that only two (16,7%; N=2) of the participants did use the ophthalmoscope to inspect the retinas of the patient's eyes. None of the participants could therefore be considered to be competent in this item. The reason for this finding could be that the majority of the participants were not skilled enough to use the

ophthalmoscope correctly, or that there are a shortage of resources and equipment in the clinics. See item M where participants indicated that the clinic often do not even have thermometers. .

The participants could be considered competent in combining and applying examination skills during the physical examination and demonstrated their competence in the use of the stethoscope and Baumanometer.

Participant numbers 8 and 9 were the most competent of all the participants as they have applied the examination techniques correctly and knew that they should use the ophthalmoscope and examine the hypertensive patient's eyes.

4.3.7 Section F: Specific outcome 5: Make a diagnostic decision

The participants were assessed as how competent they were in making an accurate diagnosis in relation to:

Item F.1 Actual (current) health problems

The majority of the participants, namely 83,3% (N=10) were competent in identifying the actual health problems of the patients correctly.

Item F.2 Nursing diagnosis

Almost all the participants namely 91,9% (N=11) were competent in making an accurate nursing diagnosis, while only 8,3% (N=1) were not considered competent enough. This participant also had to be reminded to make a nursing diagnosis (see list of questions asked in chapter 3). It is therefore clear that the participants felt confident in making nursing diagnosis. Unfortunately in the PHC field they are expected to also make medical diagnosis as they need to stand in for medical practitioners.

Item F.3 Medical diagnosis

Only 66,7% (N=8) of the participants could be considered to be competent as they made an accurate medical diagnosis of hypertension, 33,3% (N=4) were therefore not competent. The latter four participants had to be coached to make a medical diagnosis, but they did not succeed (see list of questions in chapter 3, p.56).

Item F.4 Potential problems

Most of the participants were able to make a correct diagnosis of potential health problems, and therefore 58,3% (N=7) were considered to be competent. Although the participants were reminded to look for potential health problems that might need further attention, 41,7% (N=5) could not identify potential health problems in the patients they managed (see questions listed in chapter 3).

Item F.5 Based diagnosis on findings of the examination

All the participants who made correct diagnosis in item F.2 and F.3 could motivate their diagnostic decisions with their findings deducted from the examination of the patient.

In **Section F** the participants seem to have experienced problems in detecting potential problems 41,7% (N=5) and making a medical diagnosis (33,3%;N=4).

The majority of the participants were considered to be competent in this section as they were able to complete the stipulated tasks to the satisfaction of the researchers. The participants who were considered to be competent, were numbers 4, 5, 6, 7, 8 and 10.

Three participants, namely numbers 1, 2 and 9 were only considered to be incompetent in one item, but as one of these participants, namely number 9 was not able to make a medical diagnosis these participants cannot be considered to be competent. Participants number 1 and 2 were also considered to be competent, which brings the total of competent participants for this section up to 8 (66,7%).

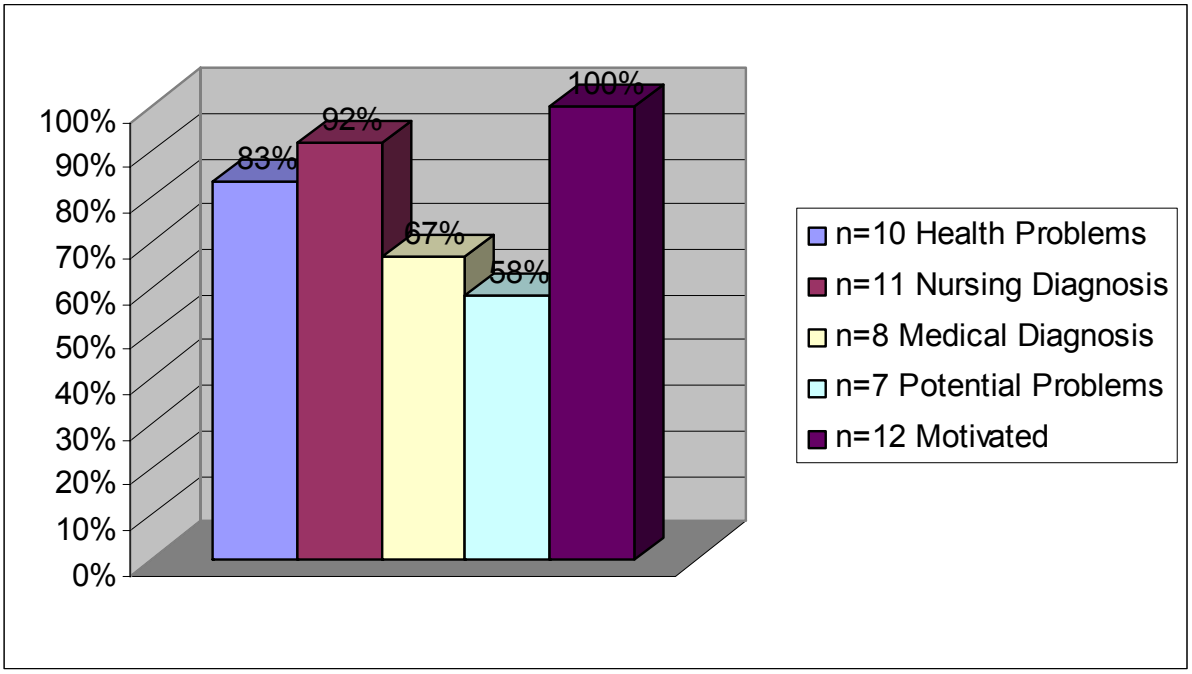

Figure 4.2: The results of the making of diagnostic decision (N=12)

Participant numbers 3, 11 and 12 were incompetent in three items, therefore they were incompetent in making a medical diagnosis.

4.3.8 Section G: Specific Outcome 6: Refer patients

The knowledge of the participants about the patients with **certain conditions** that should be referred to the next level of health care delivery were assessed by asking them two questions where they did not indicate it spontaneously themselves. The researchers asked "When would you refer a patient" and "How and when should emergency treatment be given to hypertensive patients" (see list of questions in chapter 3, p.56).

Item G.1 Unclear or uncertain diagnosis

All the participants, namely 100,0% (N=12) indicated that they would refer a patient if they were not certain about the diagnosis.

Item G.2 Referral of all patients at risk of developing hypertension

Most of the participants, namely 58,3% (N=7) were not competent in this item as they did not indicate that they would refer a patient at risk of developing hypertension.

Item G.3 Conditions that fell outside their scope of practice

All the participants knew that they should refer patients whose condition fell outside their scope of practice. Unfortunately 16,7% (N=2) of the participants could not correctly name the conditions that fell outside their scope of practice when asked by the researchers. The majority of the participants namely 83,3%(N=10) could therefore be considered to be competent in this item.

Item G.4 Referral of a patient with Diabetes Mellitus

The majority of participants, namely 66,7% (N=8) did not know that a newly diagnosed patient with DM should be referred to a medical practitioner. Only 33,3% (N=4) of the participants could therefore be considered to be competent in this item.

Item G.5 Referral of a patient with history of renal problems

Most of the participants, namely 75,0%(N=9) did not mention that a patient with a history of renal problems should be referred to the medical practitioner, therefore only 25,0% (N=3) of the participants could be considered competent in this item.

Item G.6 Referral obese patients

Most of the participants did not mention that obese patients should be referred to a medical practitioner, therefore 58,3% (N=7) of participants were considered incompetent in this item. Some participants most probably understood the question incorrectly by assuming that the researchers referred to the patient they managed. As the patients they managed were not obese they did not think of refereeing the particular patient.

Item G.7 Referral of pregnant patients

Only 8,3% (N=1) of the participants mentioned pregnancy as a reason to refer a patient to a medical practitioner, probably due to the fact that pregnancy was not applicable to the patients they managed.

Item G.8 Referral of patients younger than 30 years

Only one participant (8,3%) was competent in indicating that patients younger than 30 years who are suspected of developing hypertension should be referred to a medical practitioner. It also could be due to the fact that the patients they managed were much older and most probably felt that it was not applicable to the patient s/he managed.

Item G.9 Referral patients with uncontrolled hypertension

All 100,0% (N=12) participants mentioned a patient with uncontrolled hypertension as a reason to refer a patient to a medical practitioner.

Item G.10 Providing emergency treatment before referral

Most of the participants answered the question correctly as they indicated how and when emergency care to patients with hypertension should be provided before referral and how they would do it. These participants 91,7%(N=11) were therefore considered to be competent. Only 8,3% (N=1) participant was considered to be incompetent as s/he did not provide all the detail information needed by the researcher.

Table 4.3: Results evaluation of participants on referral of patients (N=12)

Condition	Number of participants	%
Uncertain diagnosis, uncontrolled hypertension	12	100,0
Not in scope of practice	2	16,7
Diabetes Mellitus	8	66,78
Renal problems	9	75,0
Pregnant, younger than 30 years	1	8,3
Emergency treatment	11	91,7

In the next item the participants were asked to write a referral note for their patient and were assessed in the manner in which the note was written, and whether it contained all the correct information, whether it was dated, signed by him/her and whether s/he included her/his qualification. The participants were also supposed to indicate what s/he would do with the letter, and to whom it would be addressed. Only those participants who could provide all the information were considered to be competent.

Item G.11 Writing of a referral note

All the participants (100,0% (N=12) were considered to be competent as they wrote the referral letter correctly when asked to do so by the researchers.

In this section only one participant, namely participant number 10 was competent in all the items. Participants numbers 5, 8 and 9 could be considered to be fairly competent in referral of a patient as they only had one item wrong and either did not mention that pregnancy or a patient younger than 30 years with hypertension should be referred. The other participants had four or more items incorrect.

4.3.9 Section H: Specific outcome 7: Prescribe treatment for the patient

The manner in which the participant prescribed treatment for the patient was assessed. The researchers only considered the participants competent if they prescribed the correct treatment, at the correct times, in the correct dosage in relation to the patient's conditions, and could write out a legally correct prescription. The following aspects were noted in particular:

Item H.1 Monitor patient's drugs

All the participants, namely 100,0% (N=12) were considered to be competent in this item as they all first evaluated the drugs the patients were currently taking, also the over the counter drugs, before prescribing drugs for the patients.

Item H.2 Prescribed any drug treatment

All the respondents (100,0%;N=12) prescribed drug treatment for the patients they managed.

Item H.3 Step wise treatment

All the participants, namely 100,0% (N=12) were competent in prescribing drug treatment according to the Step wise system.

Item H.4 Prescription

All the participants (100,0%; N=12) were considered to be competent in writing out a legally correct prescription.

All the participants were competent in this section.

4.3.10 Section I: Specific outcome 8: Provide appropriate health education

The manner in which the participant provided health education, whether s/he provided correct and relevant education to the patient's condition and whether s/he kept the age, culture and socio-economic situation in mind were assessed and explained to the patients how a change in lifestyle would improve their health. Only if the participants have done it correctly were they considered to be competent in the particular item.

Item I.1 Correct diet

All 12 (100,0%) participants were competent in providing health education on correct diet for patients with hypertension. The health education also kept the patients' socio-economic situation as well as their cultural and personal preferences in mind.

Item I.2 Reduce weight

All the participants, namely 100,0% (N=12) were considered to be competent in providing the necessary information the patients needed to reduce weight.

Item I.3 Reduction of fat intake

All the participants, namely 100,0% (N=12) made special mention of the reduction of fat in the patient's diet and explained to the patient why it was necessary to reduce fat intake.

Item I.4 Reduce salt intake

All the participants (100,0%; N=12) emphasised that patients with hypertension should reduce salt intake and they also explained why it was important.

Item I.5 Reduce alcohol consumption

All the participants namely 100,0% (N=12) explained to the patients the importance to reduce the intake of alcohol.

Item 1.6 Stop smoking

All the participants (100,0%; N=12) indicated that patients who are suffering from hypertension should not smoke cigarettes. They also had to explain why it was important before they could be considered to be competent in this item.

Item I.7 Managing stress

Almost all the participants namely 83,7% (N=10) explained to the patients that they should attempt to reduce their stress. These participants were only considered to be competent if they were able to give examples on how it could be done. Only 16,7 (N=2) were not considered to be competent in the health education they provided to the patient. One of

these participants who were incompetent in this item was the same participant who also did not ask the patient about stress in item B2.1.

Item I.8: Importance of exercise

All the participants namely 100,0% (N=12) explained to the patients the importance of doing some form of exercise if one has hypertension and that they should start walking short distances in the beginning.

Item I.9: Understood the treatment

Almost all the participants namely 91,7% (N=11) made sure that the patients understood the treatment that have been prescribed to them, and were therefore considered to be competent in this item.

Item I.10: Report side effects

All the participants namely 100,0% (N=12) were considered to be competent in this item as they explained to the patient what side effects of the medication to report to the nursing staff at the clinic.

Item I.11: Comply to treatment

All the participants namely 100,0% (N=12) were considered to be competent in this item as they stressed the importance of taking the medication exactly as prescribed and explained to the patient what happens if a hypertension patient does not comply to the prescribed treatment.

Item I.12: Return dates

All the participants (100,0%; N=12) emphasised the importance that patients should stick to the dates of the follow-up visits and explained to the patients the importance to stick to return dates.
In this section all the participants (100,0%;N=12) were considered to be competent as only 16,7% (N=2) omitted one item in the health education they provided.

The participants who were the most competent were numbers 4, 5, 6, 7, 8, 9, 10, 11 and 12 as they all asked all the questions considered to be important in hypertension. Participant number 1 did not ask the patient whether s/he understood the prescribed treatment. Participants number 2 and 3 did not provide health education on the relieving of stress.

4.3.11 Section J: Specific outcome 9: Write clinical notes

The manner in which the participant wrote appropriate clinical notes was assessed. The following aspects were specially noted during the observation:

Item J.1 Date of visit

All the participants, namely 100,0% (N=12) wrote the correct date of the visit on the clinical notes and were therefore considered to be competent in this item.

Item J.2 Main complaint

The majority of the participants, namely 91,7% (N=11) were considered to be competent in this item as they noted the main complaint in the clinical notes

Item J.3 Secondary health problems

Only 58,3% (N=7) of the participants were considered to be competent in this item as they noted the secondary complaints of the patient. Secondary problems are problems unrelated to the main complaint, such as hearing loss. Therefore 41,7% (N=5) of the

participants did not state any secondary complaints. It could be that the participants were not really incompetent in this item, but that they did not notice any secondary health problem during the physical examination.

Item J.4 Important findings of the history

All the participants were considered to be competent in this item as they all stated important findings of the history in the clinical notes.

Item J.5 Findings of examination

All 12 (100,0%) participants were competent in writing clinical notes as they all stated the findings of the examination in the clinical notes.

Item J.6 Final diagnosis

All 12 (100,0%) the participants were considered to be competent in this item as they also included the diagnosis in the writing clinical notes.

Item J.7 Prescription

All 12 (100,0%) the participants were considered to be competent in writing clinical notes as they all stated what was prescribed by them.

Item J.8 Health education

Almost all the participants, namely 91,7% (N=11) were considered to be competent in this item as they mentioned in the clinical notes what health education was provided to the patient.

Item J.9 Referral of patient

All the participants indicated in their clinical notes whether they referred the patient or not. They were therefore all considered to be competent in this item.

Item J.10 Return dates

All the participants were considered to be competent as 100,0% (N=12) indicated in the clinical notes when the patient should report for a follow up visit.

Item J.11 Signed clinical notes

All the participants 100,0% (N=12) signed the clinical notes. They were therefore all considered to be competent in this item.

Item J.12 Qualifications

Only 66,7% (N=8) of the participants provided their qualifications when signing the clinical notes. Only these participants were therefore considered to be competent in this item.

The clinical notes written by five participants, namely participant numbers 5, 7, 8, 9 and 10 were completely correct. Participant numbers 3, 6 and 12 omitted one item and participant numbers 1, 2, 4 and 11 omitted three items. The participants could however be considered to be competent in this section.

4.3.12 Section K: Specific outcome 10: Demonstrate professional conduct when managing patients

The manner in which the participant executed the following professional skills was assessed:

Item K.1 Developing rapport with the patient

All the participants, namely 100,0% (N=12) were considered to be competent in this item as they developed a good rapport with the patients.

Item K.2 Communication skills

All the participants were considered to be competent in this item as they all communicated well with the patients.

Item K.3 Made patient feel comfortable

All the participants were considered to be competent in this item as they all (100,0% (N=12) made the patients they managed feel comfortable.

Item K.4 Explained what was being done to patient.

All the participants 100,0% (N=12) were considered to be competent in this item as they constantly talked to the patients and explained everything that they were doing to the patient.

Item K.5 Allowed questions

All the participants 100,0% (N=12) were considered to be competent in this item as they allowed the patients to ask questions.

Item K.6 Safe guarded patient's ethical rights

All the participants, namely 100,0% (N=12) were considered to be competent in ensuring the patients' ethical rights, such as privacy.

All the participants were competent in this section as they projected professional conduct while managing the patients.

4.4 Section L: Discussions of findings of the interview schedule

This section included the opinion of the participants themselves on certain matters regarding their training, such as their opinions on the theoretical and practical training as well as how competent they perceive themselves in the attainment of the outcomes of the training programme. The opinion of the participants was obtained after the observation and assessment of the management of the patients was completed.

Item L.1 Students should work in various regions during their training

On the above statement the majority of the participants responded negatively as 58,3% (N=7) participants strongly disagreed that students should work in various regions during their training, and (N=4) disagreed. Only 8,3%(N=1) participant agreed with the statement. The participants therefore felt that students should be placed in one clinic only during their experiential learning period (*home module*) and that they should not move to another clinic.

Item L.2 Should students remain longer in college during their training?

Here again the majority disagreed with the statement as 50,0% (N=6) of the participants disagreed and 16,7% (N=2) strongly disagreed, as they felt that students should not stay in college for longer periods. However 8,3% (N=1) of the participants strongly agreed and 25,0%(N=3) agreed with the statement. The latter four participants therefore felt that students should stay longer at the clinics during their *home module.*

Item L.3: Students do not get the guidance they need in the clinics

The majority of the participants disagreed with the statement and therefore felt that participants do get the guidance they need in the clinics. Fifty percent (N=6) of the participants strongly disagreed with the above statement and 16,7%(N=2) disagreed. The participants were therefore satisfied with the guidance they received at the clinics. Only 33,3% (N=4) of the participants agreed and were therefore not satisfied with the guidance they received at the clinics.

Item L.4 The theoretical training students received at the college do not prepare students for the health problems they encounter in the clinics

The majority of the respondents disagreed with the above statement, as 66,7% (N=8) strongly disagreed and 25,0% (N=3) disagreed with the statement. These participants were therefore satisfied with the theoretical training they received at the college. Only 8,3% (N=1) participant was of the opinion that the theoretical training did not prepare the students for the problems they encountered in the clinics.

Item L.5 Practical training received at clinics does not help students to develop the necessary skills to manage the health problems they encounter in the clinics

All the respondents were satisfied with the practical training they received at the clinics as 75,5% (N=9) of the participants strongly disagreed with the statement and 25,0% (N=3) disagreed. All the participants were therefore of the opinion that the practical training they received at the clinics helped them to develop the necessary skills to manage health problems appropriately. The participants were therefore satisfied with the practical training they received at the clinics.

Item L.6 Students are not properly supervised during the experiential training period in the clinics

The majority of the participants disagreed with the above statement as 33,3% (N=4) of the participants strongly disagreed and another 33,3% (N=4) disagreed. The participants were therefore of the opinion that they were properly supervised during the experiential learning period at the clinics. Two participants (16,7%) strongly agreed and another 16,7% (N=2) participants agreed with the statement. Four participants indicated their dissatisfaction with the supervision they received at the clinics. This finding is in line with the finding of item L.3 where four participants revealed their dissatisfaction with the guidance they received at the clinics.

Item L.7 "I am satisfied with the training I received at college"

Half of the participants, namely 50,0% (N=6) strongly agreed and 25,0%(N=3) agreed with the statement and were therefore generally satisfied with the training they received at the college. The majority of the participants, namely 75,0% (N=9) were therefore satisfied with the training they received at the college. Only 25,0% (N=3) of the participants disagreed with the above statement. In this item there were more dissatisfied participants with the training they received at the college than those in item L.4, as in L.4 only 8,3% (N=1) participants were dissatisfied with the theoretical training they received at the college.

Item L.8 "I am satisfied with the training I received at clinics"

Only 33,3% (N=4) of the participants strongly agreed and 41,7% (N=5) of the participants agreed with the above statement. More than sixteen percent (16,7%; N=2) of the participants strongly disagreed with the above statement and 8,3% (N=1) strongly disagreed. Therefore 75,0% (N=9) of the participants were generally satisfied with the training they received at the clinics. It is the same number of participants who indicated in item L.5 that they were satisfied with the practical training they received in the clinics.

Item L.9 "I feel competent enough to manage any patient in the clinic without the guidance of a medical practitioner"

The majority of the participants felt competent enough to manage any patient in the clinic independently, as 33,3% (N=4) of the participants indicated that they strongly agreed with the above statement and another 33,3% (N=4) agreed with the statement. Although the majority of the participants therefore felt competent about their abilities some participants felt uncertain about their abilities to manage patients independently without the help and guidance of a medical practitioner or senior member of the nursing staff, as 33,3% (N=4) indicated that they disagreed with the statement. This finding is in line with the results of the research, as the participants were found to be generally competent, and they were incompetent in a very few items.

Item L.10 Students are not allocated to the clinics to learn but only to work

The majority of the participants disagreed with this statement as 50,0% (N=6) strongly disagreed and 16,7% (N=2) disagreed with the above statement. There were however some participants who were of the opinion that students were only used as workers and were not taught as 8,3% (N=1) strongly agreed and 25,0% (N=3) agreed to the above statement. Two of the abovementioned participants who agreed with the statement, indicated that they were dissatisfied with the guidance they received at the clinics.

Questions were asked to the participants to determine in which area of the training they felt they needed more **guidance.**

Item L.11 History taking

The majority of the participants indicated that they did not need more guidance in history taking, 83,3% (N=10) indicated that they felt competent enough and therefore did not need guidance whereas only 16,7% (N=2) indicated that they would have liked to have received more guidance in history taking. It is clear from the findings of Section B1 and B2 that the participants needed more guidance in the taking of a comprehensive history, as only 25,0 (N=3) could be considered competent and the rest were considered to be fairly competent in history taking. It is very important that PHC nurses take a good comprehensive history of a patient.

Item L.12 Deducting the differential diagnosis

Most of the participants indicated that they needed some guidance in deducting the differential diagnosis as 75,0% (N=9) indicated that they still need some guidance, whereas 25,0% (N=3) indicated that they feel confident and do not need any guidance. The findings of this research (item B2.23) however indicated that only 16,7% (N=2) of the participants were considered to be incompetent in deducting the differential diagnosis from the patient's history. It could be that they could master the differential diagnosis in the

patients they managed, but were not very confident that they would always be able to do it correctly.

Item L.13 Conducting the physical examination

The majority of the participants 66,7% (N=8) felt that they needed some more guidance to conduct a physical examination, whereas 33,3% (N=4) felt certain about their competencies in this area and indicated that they did not need anymore guidance. In a study done by Jacobs (1993:98) only 49,1% of the nurses who took part in the study regarded themselves competent enough to palpate, 25,4% to auscultate a patient, and 18,5% to percuss a patient.

The results of this research in Section D and E, however, found that all the participants were competent in conducting physical examinations and executing examination techniques.

Item L.14 Making the correct nursing diagnosis

More participants namely (75,0%; N=9) felt that they needed some guidance in making a correct nursing diagnosis, while 25,0% (N=3)felt they needed no more guidance in this area. Although the participants in this item revealed that they were still uncertain about their abilities, the findings of section F indicated that 91,7% (N=11) were competent in making a nursing diagnosis.

Item L.15 Making correct medical diagnosis

All the participants indicated that they needed some more guidance in making the correct medical diagnosis. This finding is in line with the findings of section F where it was revealed that the participants were not very competent in making a medical diagnosis as only 58,3% (N=7) of the participants were considered to be competent. Unfortunately it is very important for trained PHC nurses to make a correct medical diagnosis of the condition of a patient at all times to be able to prescribe the correct treatment. The participants

should therefore receive more guidance in this area in their training programme if they hoped to be successful in substituting a medical practitioner.

Item L.16 When to refer a patient

The majority of the participants 75,0% (N=9) indicated that they needed **some** more guidance in **when** to refer a patient, whereas 25,0% (N=3) participants indicated that they did not need more guidance. The findings of this research is in contrast with the findings of Section G which revealed that only four participants could be considered to be **very** competent in all the items related to the referral of the patient. It is therefore clear that the referral of patients needed more attention in the training programme.

Item L.17 How to refer a patient

The majority of the participants, namely 83,3% (N=10) indicated that they needed no more guidance on how to refer a patient, whereas 6,7% (N=2) indicated that they needed **some** more guidance. Very few of the participants were considered to be very competent in issues relating to the referral of the patient in section G, although all the participants were able to write a referral note correctly.

Item L.18: What health education to give to the patient

The majority of the participants, namely 83,3% (N=10) indicated that they knew what health education a patient should receive and therefore needed no guidance, whereas 6,7% (N=2) participants indicated that they were not always sure what health education to give a patient and would have liked some more guidance on this topic. This is in line with the finding in Section I which revealed that the participants were competent in providing health education.

Item L.19 How to write a prescription

Most of the participants 75,0% (N=9) felt that they needed no more guidance in the writing of a prescription for a patient, whereas 25,0% (N=3) indicated that they are often uncertain and needed some more guidance. All the participants in this research, referred to section J, were considered to be competent in writing out a prescription for a patient, although

25,0% (N=3) indicated in this item that they would have liked more guidance in this topic. Perhaps the participants who indicated their uncertainty in this item were rather uncertain whether they would be able to write a correct prescription (what to prescribe) for other conditions they come across.

Item L.20 When to prescribe

Almost all the participants indicated that they knew when to prescribe treatment for a patient as 83,3% (N=10) indicated that they did not need any guidance, whereas 16,7% (N=2) indicated that they would like some guidance. All the participants were considered to be competent in section J as they demonstrated to the researcher that they knew when to prescribe treatment to a patient, but in this item two participants still indicated that they did not feel very confident. It could be that the participants knew how to manage a patient with hypertension, but were uncertain of the many other patients with conditions "out there" they have not encountered yet.

Item L.21 What to prescribe

Almost as many participants felt that they needed some guidance 41,7% (N=5) on what to prescribe to a patient as those who felt that they did not need more guidance (58,3%;N=7). Although the majority felt competent in that they knew what to prescribe to a patient, the difference between the two groups was very small. This is in contrast with the findings of Section J where all the participants demonstrated that they were competent in knowing what to prescribe to a patient. Perhaps they felt confident in this case (patient with hypertension), but did not feel very confident in their abilities for all possible conditions. This topic therefore needs to be attended to in the training programme.

Item L.22 Writing of clinical notes

Most of the participants, namely 75,0% (N=9) indicated that they felt competent and needed no more guidance in the writing of clinical notes, whereas 25,0% (N=3) indicated that they needed more guidance. This finding is more or less in line with the finding of

Section J where 5 participants were found to be 100% competent and three 91,6% competent.

The participants indicated that they needed more guidance in the following items:

- What health education to give the patient (16,7%;N=2).
- History taking (16,7%;N=2).
- How to refer a patient (16,7%;N=2).
- When to prescribe treatment for a patient (16,7%;N=2).
- Writing clinical notes (25,0%;N=3).
- What should be prescribed to a patient (41,7%;N=5).
- Conducting of the physical examination (66,7%;N=8).
- When to refer a patient (75,0%;N=9).
- Deducting the differential diagnosis from the patient's history (75,0%;N=9).
- Making a nursing diagnosis (75,0%;N=9).
- When to refer (83,3%;N=10).
- Making a medical diagnosis (100,0%;N=121).

Item M Problems encountered during the training programme

The responses of the participants on the open question which dealt with the problems they encountered during their training were as follows:

- Only one respondent (8,3%) did not have any complaints.
- The majority of the participants, namely 83,7% (N=10) were not satisfied about the supervision they received at the clinics, as 50,0% (N=6) of the participants indicated that there where either no supervision or no preceptors at the clinics; 25,0% (N=3) of the participants indicated that there were a shortage of preceptors at the clinics, and 8,3% (N=1) participants indicated that the preceptors that where at the clinics were always busy and did not have the time to guide the students.
- Twenty-five percent (N=3) of the participants indicated that there were no medical doctors available during their *home module* at the clinics.

- Twenty-five percent (N=3) of the participants indicated that there where always a shortage of drugs at the clinics or that the drugs that were available have expired.
- Accommodation and transport problems were also mentioned by the participants as 16,7% (N=2) complained that they had not accommodation for the *home module* at the clinics, and 8,3% (N=1) indicated that transport was a problem.
- One participant (8,3%) indicated that students had to share patients during the training sessions at the clinics, and this tired the patient.
- One participant (8,3%) complained that their fellow students could not come to a final decision of their findings during the physical examination of the patient which contributed to the fatigue of patients.
- One participant (8,3%) indicated that there were a general shortage of resources at the clinics, and mentioned thermometers and glycometers. If basic equipment were not available at some clinics, ophthalmoscopes were most probably also in short supply.
- Two participants (16,7%) complained that they did not see the pathology they learned about at the college, such as splenomegaly and did not see any patients with rare conditions. They only saw the common conditions at the clinic.
- One participant (8,3%) complained that there were no water at the clinics, and that they could not wash their hands when they needed to.

Problems identified by participants:

- Supervision at the clinics (83,3%; N=10)
- No medical practitioner at the clinics (25,0%; N=3)
- No drugs available at the clinics (25,0%; N=3)
- Accommodation and transport (16,7%; N=2)
- Not enough patients for the practicing of skills (8,3%; N=1)
- Shortages of resources and equipment (8,3%; N=1)
- Only dealt with the most common conditions in the clinics (8,3%; N=1)

4.5 CONCLUSION

The findings revealed that most of the participants in this research could be considered to be middle aged as most of the participants were 40 years and older females.

It was clear from the findings that the participants were placed in their particular home regions for their experiential learning (home module) and were now also working in the same regions of the Limpopo province as qualified PHC nurses. They also did not move around to any of the other six regions during their practical training (decentralised training). The participants also indicated that they were satisfied with this arrangement.

The history taking process was done fairly well by the participants, although the history taking was not on the level one would expect, trained PHC nurses should be very competent in this item. Only three participants were really competent in the taking of a patient history.

The participants were considered to be competent in deducting the differential diagnosis although they indicated that they needed some more guidance in this area.

The participants were also considered to be competent in making a diagnosis, although not all the participants could make a medical diagnosis correctly. This is rather a disturbing finding as the treatment that follows in the management of the patient rests on correct diagnosis. The participants also revealed their uncertainty in their abilities in this area and indicated that they needed some more guidance.

Only one participant was totally competent in all the items related to the referral of patients, although they were almost all competent in the writing of a referral note. The participants also mentioned referral as a topic they need more guidance in.

All the participants were considered to be competent in giving health education. This is most probably due to years of experience and not necessarily due to the training programme.

The participants were considered to be competent in the items related to the prescribing of treatment. This could also be due to the fact that there are guidelines available and often

posters on the walls of clinics in the form of protocols on management and steps that should be followed in the treatment of patients. The participants in this research however indicated that they felt uncertain in their abilities in this area.

The participants could write correct clinical notes. All the participants also demonstrated good professional conduct during the management of the patients.

By evaluating the findings of this research it could be said that the decentralised training programme, in view of the competency of the participants in managing patients with hypertension could be considered to be effective, but that there were some issues that needed to be addressed.

4.6 SUMMARY OF CHAPTER 4

In this chapter the analysed data were discussed. The findings of the checklist were discussed and then the findings of the interview schedule, were discussed.

It is clear from the analysed data that the decentralised training programme in the Limpopo province could be considered effective, although there are aspects that needed to be improved or needed serious attention.

Chapter 5 provides a summary of the research and provides detailed discussions, based on the findings and recommendations formulated by the researcher.

CHAPTER 5

SUMMARY, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

5.1 INTRODUCTION

In the previous chapter, data obtained from the checklist used during the observation and the interview schedule were analysed and presented graphically. In this chapter the research findings are summarised, research limitations, conclusions of the research are discussed and recommendations made deducted from the research findings.

As mentioned in chapter 1 and 3 the effectiveness of the decentralised training programme for PHC nurses in the Limpopo province have been assessed by evaluating the *outcomes of the training programme.* This research therefore used the outcomes of the training programme for the PHC nurses as research questions and objectives. The research objectives and research questions also formed the conceptual framework.

In this chapter a summary of the findings related to every research question have been provided. The final conclusion, namely whether the research findings revealed that the decentralised training programme in the Limpopo province was found to be effective or not will also be discussed. Important findings of the research have been discussed according to the particular section, item and participants. Finally, the limitations of the research have been discussed and recommendations provided for the improvement of the training programme and for future research.

5.2 SUMMARY

The high prevalence of preventable health problems that existed in Africa and other developing countries was the rationale for the development of the philosophy of PHC by the WHO. One of the eight elements of the philosophy of PHC, of this global strategy, involves the rendering of primary curative or primary medical care which includes the assessment of the patient, the diagnosis of the condition and the prescribing of the appropriate treatment for the patient. Traditionally this service is rendered by medical practitioners on a daily basis, however due to shortages, registered nurses are being trained to substitute the doctors in South Africa.

One such training programme, which has changed at least three times without the back-up of research findings to substantiate the decision, has been offered in the Limpopo province. With the latest change the experiential learning, which was under direct control of the training institution, was decentralised. The lecturers at the training school anticipated that the decrease of control by the nursing school, less support and quality of supervision from preceptors at the various clinics in the province during their so-called *home module* would lead to incompetent PHC nurses, and make the training programme for PHC nurses less effective.

As the summative outcomes of the training programme are evaluated before the completion of the programme, the researcher decided to assess the diplomates again after the completion of their training programme and after they have been confronted with the realities of the practice. The researcher decided to determine whether the training they have received in the clinics have prepared them sufficiently for the problems they have to face. Have they become less effective by excluding certain important aspects during the consultation of the patient or did they make incorrect decisions that might be detrimental to the welfare of the patient?

The competencies of the diplomates of the decentralized PHC training programme were assessed by observing them as they managed patients with hypertension. The researcher decided to make use of patients with hypertension as this was one of the serious chronic

conditions registered PHC nurses need to deal with on a daily basis. It is also becoming more prevalent among the black communities of South Africa.

As the researcher wanted to determine to what extent the participants were competent in managing the patients, the quantitative research method was deemed the most appropriate paradigm to use for this research. As no record could be found of the evaluation of this training programme this research could also be considered to be explorative. This research was also descriptive in nature as it accurately portrayed the frequency with which certain phenomena occurred. This research was conducted within the context of the one year decentralised PHC training of registered nurses in the Limpopo province only.

In this study the **research population** consisted of 60 PHC diplomates of the one year decentralised PHC training who have completed their training. These students recently qualified as PHC nurses and were from the 6 districts of the Limpopo province.

A **stratified sampling method** was used by selecting 12 participants from the abovementioned research population who did one year decentralised PHC training in the Limpopo province. Two participants from each of the six districts of the Limpopo province were selected, which formed 20% of the research population. The six districts were Bohlabela, Waterberg, Sekhukhune, Vhembe, Capricorn and Mopani.

Data were collected by making use of the **observational method** and a **structured checklist**. The checklist contained all the items which a PHC nurse had to execute whilst managing a patient with hypertension, and the researcher had to indicate (tick off) on the checklist whether the participants had completed the task competently, incompetently, did not do it at all, or whether the item was not applicable to the particular situation. The checklist used during the observation process in this study has been in use and improved by another training institution who also trains PHC practitioners in a decentralised manner. The instrument was however also pre-tested for validity and reliability, changed and adapted for this research after consultation with experts in the field. A medical practitioner was used as co-researcher to ensure validity and reliability of the research process and findings. The researcher was of the opinion that a medical practitioner would be the best

person to judge whether the participants were competent enough to substitute a medical practitioner.

Data were also **collected** from the participants during a **personal interview** with the participants and making use of an **interview schedule**. The short interview schedule was designed to obtain the biographical data of the participants and it also included some questions on their personal views of the decentralised training programme, and their abilities to substitute a medical practitioner.

Data analysis was done through coding of the checklist and interview schedule and by making use of a computer with the SPSS program.

As this research was considered to be sensitive as it involved the observation method of data collection, (the managing of patients from the hospital) and could reflect negatively on certain training institutions, the ethical aspects were considered to be very important. For this reason special attempts were made to obtain the necessary permission from all parties involved in the research and to ensure the safety and privacy of the participant, patient and institutions. All data gathered were kept confidential unless permission was obtained to make it known.

The checklists were analysed in terms of the

- **sections** as a whole, which represented the **outcomes** of the decentralised training programme as well as the **research questions**
- findings of the **items** (of each section) which represented the **tasks** that had to be fulfilled to attain the outcome
- findings which identified the competency levels of **each of the participants**

The interview schedule was analysed separately by analysing the findings of the **sections** which included the opinions of the participants.

The age of the mostly female sample were between 30 and 52 years (**Section A**).

The effectiveness of the training of the diplomates of the one year decentralised training programme could be **demonstrated** to what extent they have attained the summative outcomes of the training programme. These outcomes were to:

5.2.1 Obtain the history of a patient

This objective was divided into two sections in the checklist, namely:

► **Section B and Section B2** and represented the **specific outcome number 1** of the training programme namely: *Obtain health history of patient***.** Section B dealt mostly with the personal history of the patient and family. Section B2 dealt with the conditions that could be considered to be potential and real complications of hypertension as well as personal habits that might lead to these complications.

A total of 27 tasks (items) were included in this section. The majority of the participants were considered to be *fairly* competent in the completion of this **section**, although some results were very disappointing.

● **The item** in which the results were disappointing was with the collection of data on the previous medical history of a patient. Two participants did not collect this information from the patient which is a serious mistake. The participants were 100% competent in 9 items, fairly competent in 13 items and incompetent in 5 items.

■ Four **participants**, namely numbers 6, 7, 8 and 10 were considered to be competent as they could execute the majority of the tasks (items) correctly.

5.2.2 Conduct a physical examination on a patient appropriate to his/her condition

This objective was divided into three outcomes namely: *Do side room investigations* (Section C of the checklist); *Conduct relevant physical examination* (Section D); and e*xecute the examination techniques* which also included the appropriate use of instruments (Section E).

► **Section C** consisted of 7 items (tasks). The participants were generally competent in this **section**, namely the *side room investigations* as the participants did most of the side room investigations.

● **The items** in which some were considered to be incompetent, were the urine tests, because they are used to the arrangement that another nurse would test the urine before the patients consulted them.

■ **Participants** who were considered to be competent were numbers 2, 6, 8 and 10 who completed all the side room investigations competently.

► **Section D** with the outcome: *Conduct relevant physical examination* consisted of 9 items. This section was competently executed by all the participants.

● The only **item** in which they were not competent was the examination of the patients' eyes.

■ The **participants** who were considered to be competent in this section were numbers 8 and 9 as these participants knew what elements of the physical examination should be done on a patient with hypertension.

► **Section E** consisted of 7 items and assessed the outcome *Execute examination techniques and use the instruments*. The participants were competent in this section.

● The only **item** in which they were not competent was the use of the ophthalmoscope, which is in line with the findings of the items *examination of the patients' eyes* in Section D.

■ The participants who were competent in this section were 8 and 9 as they have applied the examination techniques correctly and knew that they should use the ophthalmoscope and examine the hypertensive patient’s eyes.

5.2.3 Make a diagnostic decision based on the findings of the history and physical examination

► **Section F** which assessed the above objective/outcome consisted of 5 items. The majority of the participants were considered to be competent in this section as they were able to complete the stipulated tasks to the satisfaction of the researchers.

● The item in which the participants seem to have experienced problems was in the detection of potential health problems and to make a medical diagnosis. This is also of serious concern as a third of the participants could not make a correct medical diagnosis.

■ The participants who were considered to be competent, were numbers 1,2 4, 5, 6, 7, 8 and 10 which is 66,7% of the participants.

5.2.4 Refer the patient

► **Section G** which assessed the knowledge of the participants when a patient should be referred to the next level of service delivery, how it should be done which also included the writing of the referral note, consisted of 10 items.

● **The items** indicated when the participants would refer a patient

- if the diagnosis was not clear or if they were uncertain about the diagnosis
- with hypertension and DM
- the hypertension is not under control
- when emergency treatment was necessary

They were also competent in the writing of a referral note. It is therefore clear that the participants would refer a patient who has hypertension and has developed problems (curative measure), but they did not know that hypertension could be prevented by

referring a patient at risk to a medical practitioner (preventive measure). They could therefore be considered to be competent in this item only because they would know when to refer a patient with hypertension.

■ **Participant** numbers 5, 8, 9 and 10 were competent in all the items regarding the referral of patients.

5.2.5 Prescribe the correct treatment for a patient

► **Section H** which assessed the manner in which the participants prescribed treatment for the patient, consisted of 4 items. This section was competently executed by all the participants, which indicated that they were able to monitor the patients current treatment, knew how and what drugs to prescribe to a patient with hypertension and was able to write a legally correct prescription.

● All **the items** in this sections were 100,0% correctly executed.

■ All **the participants** were competent in this section.

5.2.6 Provide appropriate health education to a patient

► **Section I** which assessed the abovementioned objective/outcome consisted of 12 items. Although three participants each omitted to provide one aspect of the health education the patients should have received they can be considered to be competent.

● The only **item** omitted by two participants 16,7% (N=2) was on health education to relieve stress and one (8,3%) participant who did ask the patient whether s/he understood the treatment.

■ **Participants** who were the most competent were numbers 4, 5, 6, 7, 8, 9, 10, 11 and 12 as they asked all the questions considered to be important in hypertension.

Participant number 1 did not ask the patient whether s/he understood the prescribed treatment. Participant numbers 2 and 3 did not provide health education on the relieving of stress.

5.2.7 Write clinical notes

► **Section J** which assessed the manner in which the participants wrote the clinical notes, consisted of 12 items. Although some participants omitted some items they could be considered to be competent in this section.

- **The items** which the participants did not execute correctly were the stating of their qualifications on the notes (66,7%; N=8); to note what health education was provided (8,3%; N=1); and note what the main complaint of the patient was (8,3%; N=1). Although five (41,7%) participants did not note the secondary complaints, it does not indicate that they were incompetent as the participants did not notice any secondary health problems while consulting the patients.

■ **The participants** who were considered to be competent in all items were numbers 5, 7, 8, 9 and 10. Participant numbers 3, 6 and 12 omitted one item and participant numbers 1, 2, 4 and 11 omitted three items. All the participants could however be considered to be competent in this section.

Another outcome which was not stated in the objectives or research questions was the professional conduct of the participants. As registered nurses are always expected to manage patients in a professional manner it is one of the outcomes of any training programme. This outcome will be discussed below.

5.2.8 Demonstrate professional conduct when managing patients

► **Section K** which assessed the manner in which the participants conducted themselves whilst managing the patient and demonstrated some professional skills, consisted of 6 items. All the participants were considered to be competent in this outcome as they projected good professional conduct while consulting the patient.

- All **the items** were competently executed.

■ All **the participants** were considered to be competent in this section.

Other research questions were asked such as:

- How did the diplomates in PHC experience their training?
- Do they feel confident that they have the necessary knowledge and skills to be able to independently render an effective PHC service?
- What problems have they experienced?

The first two questions, mentioned above, were covered in **Section L** which consisted of 10 questions which probed the satisfaction of the participants with all areas of their decentralised training programme. It was clear form the findings from these closed questions that the majority of participants generally felt satisfied with the training they received in the college and clinics, and that they felt that they do get the necessary exposure and supervision in the clinics, and felt confident that they would be able to substitute a medical practitioner whenever it might be necessary.

Although the majority of the participants indicated that they were satisfied with the training they received and have developed the knowledge and skills to practise independently in the clinics, without supervision and guidance as discussed in the above paragraph, the participants indicated that they would like **some more** training in **almost all** the areas assessed.

- In chapter 4 the findings of the open question which was part of the interview schedule discussed in **Section M**. On the question "What problems have you encountered during the training programme?" the participants mostly complained about supervision at the clinics (83,7%) and to a lesser extent that there were no medical practitioners at the clinics and no drugs available at the clinics (25,0%). Accommodation, transport, not enough patients with more serious conditions to practise on and shortages of resources were some of the other complaints of the participants.

5.3 CONCLUSIONS

The diplomates of the decentralised training programme in the Limpopo province were *fairly* competent in the taking of the patients' history, although they indicated that they felt confident enough about their abilities in this area and did not need more guidance in this area. Nurses take the history of patients on a daily basis and in every area of nursing, but it is the most neglected task of the nurse. Primary health care nurses tend to rush through the history taking process to come to the "more difficult" part of the management of a patient which is a newly acquired skill, namely the physical examination. Unfortunately the personal health and disease history of the patient as well as the family history should guide all the other decisions made by the PHC nurse, such as what side room investigations should be done or what element of the physical examination should be performed and should not be neglected (Bickley & Szilagui 2003: chapter 1).

The diplomates were competent in all aspects of the physical examination which also includes the correct execution of examination techniques and the handling of the equipment used in the examination.

The diplomates were considered to be *fairly* competent in their diagnosis, but they all expressed their need for more guidance in this area. They were competent in the referral process as well as the writing of a referral note.

The diplomates were also competent in the prescribing of the correct treatment for the patient, writing the clinical notes and providing health education. They were all extremely professional during the consultation of the patients.

Only one participant number 8 was the *most competent* of all the participants as s/he was competent in 90,9% of the sections, followed by numbers 10 (72,7%), and participant numbers 9 and 6 who were competent in 63,6% of the sections.

Participant numbers 2, 5, and 7 were competent in 54,5% of the sections. Participant numbers 1 and 4 were competent in 45,5% of the sections. Participant number 3 was the least competent. This participant was only totally competent in all the items of 36,4% of the sections.

The above statistics might not look very good on face value, but it should be kept in mind that there were many items in each section, and the above statistics only represent the **whole section** (all the items) in which the participants were competent in. They were therefore competent in **all the items** of a particular section *before* they were noted as competent in the above discussion.

The diplomates indicated that they were satisfied with the decentralised training programme, but mentioned some problems they have experienced during the training programme that needed to be addressed.

The findings of the research are valid and reliable and the scores of the researchers were always similar, as Polit et al (2001:302) say that when there is congruence in the scores of two independent observers, the scores are likely to be accurate and reliable (Polit et al 2001:302).

The researcher is therefore of the opinion that the findings of this research revealed that the diplomates of the decentralised training programme have demonstrated their competence in attaining the specific outcomes of the training programme and that the decentralised training programme in Limpopo province is effective.

5.4 LIMITATIONS OF THIS RESEARCH

The limitations that could be identified in the research were that

- the findings could not be generalised to other parts of the country as training programmes may differ
- other results could also be generated with the same sample if other research methods were used.
- as this research project used the observational method it could be possible that the participants did not behave naturally which could affect the findings
- although the researcher took steps to overcome the possibility that bias might be present in the data collection process, objectivity can never be guaranteed when using the observational method
- as only one element of the evaluation of a training programme was assessed, the evaluation of the other elements of the same training programme could generate different findings
- the repetition of the research on other patients with other conditions may generate different findings

5.5 RECOMMENDATIONS

The following recommendations are based on the research findings discussed in the preceding sections of the report.

5.5.1 Recommendations to improve decentralised training programme

- Strategic planning sessions should be conducted, involving training staff of the nursing college and clinics and the managers of these facilities, to clarify specific functions of staff to manage the shortage of staff and preceptors as well as the increasing number of students and patients. This will address the problem of poor support and supervision mentioned by the diplomates. At the same time the lack of accommodation and transport should be addressed.

- Personnel development sessions should be conducted, involving PHC nurses, preceptors, PHC students and managers to clarify the role and function of the PHC students when allocated to the clinics. This will address the problems identified by some diplomates that they were part of the labour force and were not supported enough in the learning process during the *home module*.
- More attention should be given to the importance of a comprehensive history taking process during the training of the students in the college as well as during the *home module* in the clinics.
- Continuous in-service learning programmes and personnel development programme sessions should be conducted. These programmes should be based on the training needs of the PHC nurses and assist trained PHC nurses in updating their knowledge and skills to perform effectively. This will assist PHC nurses to identify the gaps in their knowledge and skills which would improve their confidence and facilitate the learning process.

5.5.2 Recommendations for further research

The following recommendations are made regarding avenues of further research related to this topic:

- Repeating this research in other comparable training institutions within the Limpopo province, or in other parts of South Africa, because this study was only one of a relatively small number of studies already conducted regarding this important issue.
- Conducting the same research with the same sample after a few years of experience, as it is clear from the findings of this research that although the diplomates were considered to be competent and the training programme found to be effective, the participants of this research voiced their uncertainty whether they would be effective enough in all the patients and conditions they need to manage. The researcher is of the opinion that all the participants needed the opportunity to apply their knowledge and practise their skills in the real PHC setting.
- The perceptions of the PHC nurses regarding the effectiveness of their training and their daily performances should be probed in more depth.

- The problems the PHC nurses have to deal with on a daily basis should be researched as well as how it affects their daily conduct.
- Conducting research to determine how the medical practitioners who work at the PHC clinics regard the trained PHC nurse.
- Determine whether the appropriately trained PHC nurse reduces health care costs or alleviate the work load of the general practitioner.
- Test patient satisfaction with services rendered by PHC trained nurses.

5.6 SUMMARY OF CHAPTER 5

In this last chapter a summary of the whole research project was discussed as well as the limitations of the study.

The aim of the research was to determine how effective the training of the diplomates of the one year decentralised training programme was. This has been **demonstrated** to the extent they have *attained the summative outcomes of the training programme* by observing and evaluating the diplomates of the training programme as they managed patients with hypertension.

The conclusion drawn in this research is that the training programme was found to be effective as the outcomes of the programme have been competently attained by the programme.

Recommendations were made based on the findings of the research to improve the one year decentralised PHC training programme, as well as for further research in this field.

The findings of this research contradicted the concern voiced by Wilson, Pearson and Hassey (2002:642) that PHC trained nurses might not have the capacities or effective training to substitute a medical practitioner.

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ANNEXURE A
CODED CHECKLIST AND INTERVIEW SCHEDULE

CHECKLIST HYPERTENSION
PERFORMANCE ASSESSMENT

Number

1-2 | | |

SECTION A: BIOGRAPHICAL DATA

1 Age:

3-4 | | |

2 Gender:

Key: Female = 1
Male = 2

5 |

3 Clinics where experiential learning **was done**

At what clinics did you do your?

Key: Yes: = 1
No = 2

1 Bohlabela 7 |

2 Waterberg 8 |

3 Sekhukhune 9 |

4 Vhembe 10 |

5 Capricorn 11 |

6 Mopani 12 |

SECTION B: SPECIFIC OUTCOME 1:
OBTAIN HEALTH HISTORY OF PATIENT.

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

HISTORY TAKING:

1 Noting of relevant biographical information?

13 ☐

2 Noting of information about patient's main complaint?

14 ☐

3 Noting of relevant social history?

15 ☐

4 Noting of important previous medical history?

16 ☐

5 Noting of family history of diseases due to artherio-sclerosis e.g. stroke?

17 ☐

6 Noting of family history of heart diseases?

18 ☐

7 Noting of family history of obesity?

19 ☐

8 Noting of family history of Diabetes mellitus?

20 ☐

9 Noting of family history of kidney problems?

21 ☐

10 Noting of family history of hypertension?

22 ☐

11 Noting whether the female patient is pregnant?

23 ☐

SECTION B2: POSSIBLE RISK FACTORS RELEVANT TO PATIENTS' LIFE STYLE

1 Noting of the presence of stress?

24 ☐

2 Noting of smoking habits of the patient?

25 ☐

3 Noting of number of cigarettes the patient smoke per day?

26 ☐

4 Noting of drinking habits of the patient?

27 ☐

5 Noting of number of glasses of alcohol consumed per day?

28 ☐

6 Noting excessive salt in patients' diet?

29 ☐

7 Noting of information on possible complications such as oedema?

30 ☐

8 Noting of information on possible complications such as fatigue?

31 ☐

9 Noting of information on possible complications such as shortness of breath

32 ☐

10 Noting of information on possible complications such as visual disturbances?

33 ☐

11 Noting of information on possible complications such as decline of vision? **34** ☐

12 Noting of information on possible complications such as severe headaches? **35** ☐

13 Noting of information on possible complications such as dizziness? **36** ☐

14 Noting of information on possible complications such as leg ulcers? **37** ☐

15 Noting of information on possible complications such as oliguria? **38** ☐

16 Noting of information on possible complications such as polyguria? **39** ☐

17 Noting of information on possible complications such as polydipsia? **40** ☐

18 Noting of information on possible complications such as nocturia? **41** ☐

19 Noting of information on possible complications such as chest pain? **42** ☐

20 Noting of information on possible complications such as calf pain? **43** ☐

21 Noting of information on possible complications such as gout? **44** ☐

22 Noting of any other possible complications? **45** ☐

Specify……..

23 Did participant list relevant differential diagnosis deducted from the history of the patient? **46** ☐

C SPECIFIC OUTCOME 2:
DO SIDE ROOM INVESTIGATIONS

Key:
Not applicable	=	1
Not competent	=	2
Competent	=	3
Not done	=	4

1 Did the participant do the following side room investigations: Urine dipstick - Glucose? **47** ☐

2 Did the participant do the following side room investigations: Urine dipstick - Protein? **48** ☐

3 Did the participant do the following side room investigations: Urine dipstick – Blood? **49** ☐

4 Did the participant do the following side room investigations: Blood pressure?

50 ☐

5 How well did the participant execute the following side room investigation: blood pressure?

51 ☐

6 How well did the participant execute the following side room investigation: recorded blood pressure findings?

52 ☐

7 Did the participant do the following side room investigations: Weigh the patient?

53 ☐

8 Did the participant do the following side room investigations: test the vision of the patient?

54 ☐

9 Did the participant do any other side room investigations?

55 ☐

Specify:……..

D SPECIFIC OUTCOME 3:
CONDUCT RELEVANT PHYSICAL EXAMINATION

Key:
Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participant do the following during the physical examination: Test JVP?

56 ☐

2 Did the participant do the following during the physical examination: Observe nails?

57 ☐

2 Did the participant do the following during the physical examination: Observe for ankle oedema?

58 ☐

3 Did the participant do the following during the physical examination: Examine eyes -Retinal arteries and veins?

59 ☐

5 Did the participant do the following during the physical examination: Examine CVS -- pulses: rate & rhythm

60 ☐

6 Did the participant do the following during the physical examination: Examine CVS --heaving

61 ☐

7 Did the participant do the following during the physical examination: Examine CVS -- displaced apex beat?

62 ☐

8 Did the participant do the following during the physical examination: Examine respiratory system -- Listen for crepitations?

63 ☐

9 Did the participant do the following during the physical examination: Examine abdominal system --enlarged liver?

64 ☐

E SPECIFIC OUTCOME 4:
HAVE PROPERLY EXECUTED EXAMINATION TECHNIQUE

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participant execute examination skills during the physical examinations such as inspection?

65 ☐

2 Did the participant execute examination skills during the physical examinations such as palpation?

66 ☐

3 Did the participant execute examination skills during the physical examinations such as percussion?

67 ☐

4 Did the participant execute examination skills during the physical examinations such as auscultation?

68 ☐

5 Did the participant use the Bauman manometer during the physical examination?

69 ☐

6 Did the participant use the stethoscope during the physical examination?

70 ☐

7 Did the participant use any other instrument properly during the physical examination?

71 ☐

Specify…….

F SPECIFIC OUTCOME 5:
MAKE A DIAGNOSTIC DECISION

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participant make a diagnosis of the actual health problem?

72 ☐

2 Did the participant make a diagnosis of potential problems? **73** ☐

3 Did the participant make a nursing diagnosis? **74** ☐

4 Did the participant make a medical diagnosis? **75** ☐

5 Was the diagnosis based on findings of the examination? **76** ☐

G SPECIFIC OUTCOME 6: REFERRING OF PATIENTS

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participants refer patient with an uncertain diagnosis? **77** ☐

2 Did the participants refer all patients at risk for hypertension? **78** ☐

3 Did the participants refer patients not within scope of practice correctly? **79** ☐

4 Did the participants refer all patients at risk for hypertension? **80** ☐

5 Did the participants refer patient with risk for Diabetes Mellitus? **81** ☐

6 Did the participants refer patient with risk renal problems? **82** ☐

7 Did the participants refer patient with obesity? **83** ☐

8 Did the participants refer patient who is pregnant? **84** ☐

7 Did the participants refer patient any patient younger than 30 years? **85** ☐

8 Did the participants refer patient with uncontrolled hypertension? **86** ☐

7 Did the participants provide emergency treatment before referral? **87** ☐

8 Did the participants write proper referral note? **88** ☐

H SPECIFIC OUTCOME 7 PRESCRIBING DRUG TREATMENT

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did participant prescribe drug treatment?

89 ☐

2 How did participant prescribe drug treatment: Step wise?

90 ☐

3 How did participant monitor the dug treatment of patients?

91 ☐

4 How did participant write prescription?

92 ☐

I SPECIFIC OUTCOME 8:
PROVIDING APPROPRIATE HEALTH EDUCATION

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participant give the health education on balanced diet?

93 ☐

2 Did the participant give the health education on reduction of weight?

94 ☐

3 Did the participant give the health education on reduction of fat intake?

95 ☐

4 Did the participant give the health education on reduction of salt intake?

96 ☐

5 Did the participant give the health education reduction of alcohol consumption?

97 ☐

6 Did the participant give the health education to motivate patient to stop smoking?

98 ☐

7 Did the participant give the health education to help patient manage stress?

99 ☐

8 Did the participant give the health education to promote exercise?

100 ☐

9 Did the participant give the health education to foster understanding of treatment?

101 ☐

10 Did the participant give the health education on reporting of side effects?

102 ☐

11 Did the participant give the health education to promote compliance to treatment?

103 ☐

12 Did the participant give the health education that the patient should stick to return dates?

104 ☐

13 Did the participant give the health education about other matters?

105 ☐

Specify……..

J SPECIFIC OUTCOME 9
Writing clinical notes

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participant write clinical notes that indicated date of visit?

106 ☐

2 Did the participant write clinical notes that stated main complaint?

107 ☐

3 Did the participant write clinical notes that identified secondary problems which would need attention in future?

108 ☐

4 Did the participant write clinical notes noting important findings of history?

109 ☐

5 Did the participant write clinical notes noting important findings of examination?

110 ☐

6 Did the participant write clinical notes noting final diagnosis?

111 ☐

7 Did the participant write clinical notes indicating what was prescribed?

112 ☐

8 Did the participant write clinical notes indicating the health education given?

113 ☐

9 Did the participant write clinical notes indicating whether the patient was referred?

114 ☐

10 Did the participant write clinical notes by indicating return date?

115 ☐

11 Did the participant sign clinical notes?

116 ☐

12 Did the participant provide her/his qualifications in the clinical notes?

117 ☐

K SPECIFIC OUTCOME 10
PROFESSIONALISM

Key: Not applicable = 1
Not competent = 2
Competent = 3
Not done = 4

1 Did the participant project good rapport with patient? **118** ☐

2 Did the participant project good communication skills? **119** ☐

3 Did the participant make the patient feel comfortable? **120** ☐

4 Did the participant explain to patient what was being done? **121** ☐

5 Did the participant give the patient an opportunity to ask questions? **122** ☐

6 Did the participant safe guard the ethical rights of patient such as privacy? **123** ☐

L QUESTIONS ASKED TO PARTICIPANT REGARDING THE OBSERVATION

1 Questions asked to participant on history taking:

- ♦ _____
- ♦ _____
- ♦ _____
- ♦ _____

2 Questions asked to participant on differential diagnosis:

- ♦ _____
- ♦ _____
- ♦ _____
- ♦ _____

3 Questions asked to participant on physical examination:

- ♦ _____

- _____
- _____
- _____

4 Questions asked to participant on final diagnosis:

- _____
- _____
- _____
- _____

5 Questions asked to participant on non-drug treatment of patient:

- _____
- _____
- _____
- _____

6 Questions asked to participant on drug treatment of patient:

- _____
- _____
- _____
- _____

7 Questions asked to participant on referral procedure of patient:

- _____
- _____
- _____
- _____

8 Questions asked to participant on health education of patient:

- _____
- _____
- _____
- _____

M THE OPINION OF THE DIPLOMATES ON THE PHC TRAINING PROGRAMME:

To what extent do you agree with the following statements?

Key:
Strongly agree	=	1
Agree	=	2
Disagree	=	3
Strongly disagree	=	4

1 Students should not work in clinics in the various regions during training 124 ☐

2 Students should remain in the college for longer periods 125 ☐

3 Students do not get the guidance they need in the clinics 126 ☐

4 The theoretical training received at the college do not prepare students for the health problems they encounter in the clinics 127 ☐

5 The practical training received at the clinics do not help students develop the necessary skills to manage the health problems they encounter in the clinics 128 ☐

6 Students are not supervised properly during the experiential training period 129 ☐

7 I am satisfied with the training I received in the college 130 ☐

8 I am satisfied with the training I received in the clinics 131 ☐

9 I feel competent enough to manage any patient in the clinic without the guidance of a medical practitioner 132 ☐

10 Students are not allocated to the clinics to learn but only to work 133 ☐

In what areas do you still need guidance?

Key:
Much more guidance	=	1
Some guidance	=	2
Need no guidance	=	3

11 History taking 134

12	**Making a differential diagnosis**	135
13	**Conducting a physical examination**	136
14	**Making a correct nursing diagnosis**	137
15	**Making a correct medical diagnosis**	138
16	**Know when to refer a patient**	139
17	**Know how to refer a patient**	140
18	**What health education to give a patient**	141
19	**How to write a prescription**	142
20	**When to prescribe drugs**	143
21	**What to prescribe to a patient**	144
22	**How to write proper clinical notes**	145

N WHAT PROBLEMS DID YOU EXPERIENCE DURING YOUR TRAINING PROGRAMME

CHECKLIST
PERFORMANCE ASSESSMENT HYPERTENSION

No:

SPECIFIC OUTCOME 1:
Obtain health history of patient.
Key: Not applicable = 1

Not competent = 2
Competent = 3
Not done = 4

Assessment criteria		1	2	3	4
Did the learner during history taking do the following:	**B1.1 Note relevant and important biographical information?** **B1.2 Note information about patient's main complaint?**				
	B1.3 Note relevant social history?				
	B1.4 Note relevant previous medical history?				
Noted information related to risk factors that predispose to development of complications	**B1.5 Family history of diseases:** **- artherio- sclerosis**				
	B1.6 Heart diseases				
	B1.7 Obesity				
	B1.8 Diabetes mellitus				
	B1.9 Kidney problems				
	B1.10 Pregnancy				

ANNEXURE B
PERMISSION REQUESTED TO DO RESEARCH

ANNEXURE C
PERMISSION RECEIVED FROM AUTHORITIES

ANNEXURE D
INFORMED CONSENT FOR PARTICIPANTS

ANNEXURE D PARTICIPANTS
TITLE OF RESEARCH: EVALUATION OF A DECENTRALISED PRIMARY HEALTH CARE TRAINING PROGRAMME
RESEARCHER: MRS S S MABASO

Please mark your answer by encircling the choices provided.

Do you understand that you have been asked to be in a research study?
Yes No
Have you read and received a copy of the attached information sheet?
Yes No
Do you understand the benefits and risks involved in taking part in this research?
Yes No
Have you had an opportunity to ask questions and discuss the study with the researcher?
Yes No
Do you understand that you are free to participate or withdraw from the study are any time?
Yes No
Do you understand who will have access to this information?
Yes No

This study was explained to me by:……..

I agree to take part in this study. I agree to be interviewed for the purposes described in the information letter. I understand that my name will not be associated with the collected information and that identifiers will be removed.

……..	……	……..……
Signature of participant	Date	Printed name

I believe that the person signing this form understands what is involved in the study and voluntary agrees to participate.

……..	……	……
Signature of researcher	Date	Printed name

ANNEXURE D PARTICIPANTS

- I am Mrs S S Mabaso student at the University of South Africa

- I need to collect data for my research, and have chosen you to take part.
- The purpose of the research is to evaluate a decentralised primary health care training programme.
- The objectives are to see whether the newly qualified primary health care nurses are capable of managing patients in the clinic, when there is not medical practitioner available.
- Data will be collected by observing you as you manage the selected patient, as you would do on a daily basis.
- The data collection process should not take more than 1½ hour.
- You are requested to answer the questions put to you by the observers as honestly and truthfully as possible.
- The results of the research will be printed in the master's dissertation of the researcher and will be examined by examiners to establish whether the researcher is able to do research on her own. **This research is therefore only for the researcher's own development and studies. You must therefore not be nervous, as you are not really the one who is being examined here!**
- The findings of this research will be confidential as no name will be mentioned and in no way will it be possible to identify you, the participants.
- Your participation is voluntary and you may withdraw at any stage of the study if you feel threatened.
- No harm will be done to you and no information you share with the researcher will be used to harm you.
- The information collected might however benefit patients in the clinics and nurses should it be possible to make suggestions to improve the training of the nurses.
- Your privacy will be ensured during the interview.
- Should you feel uncomfortable during the interview in any way, please discuss it with the researcher.
- Should you have any questions at any time, please direct it to the researcher.

ANNEXURE E
INFORMED CONSENT FOR PATIENTS

ANNEXURE E PATIENTS
TITLE OF RESEARCH: EVALUATION OF A DECENTRALISED PRIMARY HEALTH CARE TRAINING PROGRAMME
RESEARCHER: MRS S S MABASO

Please mark your answer by encircling the choices provided.

Do you understand that you have been asked to be in a research study?
Yes No
Have you read and received a copy of the attached information sheet?
Yes No
Do you understand the benefits and risks involved in taking part in this research?
Yes No
Have you had an opportunity to ask questions and discuss the study with the researcher?
Yes No
Do you understand that you are free to participate or withdraw from the study are any time?
Yes No
Do you understand who will have access to this information?
Yes No

This study was explained to me by:……..

I agree to take part in this study. I agree to be interviewed for the purposes described in the information letter. I understand that my name will not be associated with the collected information and that identifiers will be removed.

…….. ……. ……
Signature of patient Date Printed name

I believe that the person signing this form understands what is involved in the study and voluntary agrees to participate.

…….. …… ……
Signature of researcher Date Printed name

ANNEXURE E PATIENTS

- I am Mrs S S Mabaso student at the University of South Africa

- I need to collect data for my research, and have chosen you to take part.
- The purpose of the research is to evaluate a decentralised primary health care training programme.
- The objectives are to see whether the newly qualified primary health care nurses are capable of managing patients in the clinic, when there is not medical practitioner available.
- Data will be collected by observing the nurses as they interview the selected patients, examine the patients and prescribe treatment for those patients who are willing to take part.
- The data collection process should not take more than 1½ hour.
- You are requested to answer the questions as honestly and truthfully as possible without telling the nurse that you have a high blood pressure problem.
- The results of the research will be printed in the master's dissertation of the researcher and will be examined by examiners to establish whether the researcher is able to do research on her own. This research is therefore only for the researcher's own development and studies.
- The findings of this research will be confidential as no name will be mentioned and in no way will it be possible to identify the participants.
- Your participation is voluntary and you may withdraw at any stage of the study if you feel threatened.
- No harm will be done to you and no information you share with the researcher will be used to harm you.
- The information collected might however benefit patients in the clinics should it be possible to make suggestions to improve the training of the nurses.
- Your privacy will be ensured during the interview.
- Should you feel uncomfortable during the interview in any way, please discuss it with the researcher.
- Should you have any questions at any time, please direct it to the researcher.

ANNEXURE F
IDENTITY AND QUALIFICATIONS OF OBSERVERS

RESEARCHERS' QUALIFICATIONS

1 SUZAN SALELENI MABASO: THE REARCHER

BA(Cur) in Nursing Administration and Nursing Education
Diploma in General Nursing, Psychiatry, Community Health and Midwifery
Diploma in Clinical Nursing Science: Health Assessment, Treatment and Care

2 DR THEUNIS JOHAN KOTZEE: THE CO-RESEARCHER

MBChB (Degree in Medicine) (WITS)
Diploma in Mental Health Care (MEDUNSA)
Family Medicine (MEDUNSA)
Master's in Medicine (MEDUNSA) Pending.