PRACTICE REVITALISATION OF THE ROLE OF THE CLINIC NURSE REGARDING GROWTH DEVELOPMENT MONITORING OF CHILDREN IN THE PRIMARY HEALTH CARE SETTINGS OF TSHWANE, GAUTENG PROVINCE

by

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SUPERVISOR: PROF LV MONARENG CO-SUPERVISOR: PROF MM MATLAKALA

NOVEMBER 2016
DELRARATION

I declare that PRACTICE REVITALISATION OF THE ROLE OF THE CLINIC NURSE REGARDING GROWTH DEVELOPMENT MONITORING OF CHILDREN IN THE PRIMARY HEALTH CARE SETTING IN TSHWANE, GAUTENG PROVINCE is my own work with supervisory assistance and that all sources that I have used or quoted have been indicated and acknowledged.

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ABSTRACT

A qualitative, descriptive, exploratory and contextual study was undertaken to explore and describe how clinic nurses practice their role regarding growth development monitoring and anthropometric measurement of children and interpretation of their values.

An accessible population of twelve clinic nurses of all categories were purposively recruited to participate in the study. In depth individual interviews were conducted to generate data. Interviews were audio-taped and transcribed by the researcher verbatim. The direct quotes of participants were coded and arranged into meaning units for analysis.

Tech’s (1990:142-145) eight steps of analysis to analyse the textual qualitative data as cited by Creswell (2009:186) was used until themes, categories and subcategories were identified and developed. Data analysis was triangulated by using Atlas.ti computer software version 7.0 to organise text, audio data files coding, memos and findings into project files. An independent coder analysed data for validation using content analysis. Data analysis revealed that nurses had challenges in ways of doing practice evidenced by inconsistencies and discrepancies in GDM, APM of children and incorrect interpretation of their values. Non-compliance to protocols from both nurses and parents was a significant finding. Shortage of resources was reported as a major hindrance. Guidelines were formulated to guide clinic nurses. Recommendations were proposed
that the matter be taken up by nurse managers, educators and leadership from the Department of Health.

**KEY CONCEPTS:**

Practice revitalisation, clinic nurse role, growth development monitoring of children, primary health care.
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Dedication

This study is dedicated to my husband, Andy Peter Black, my two children Andy, and Alan Black, my daughter Precious and granddaughter Trinity for their support, encouragement and understanding.
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<td>APM</td>
<td>Anthropometry measurements</td>
</tr>
<tr>
<td>BMI-for-age</td>
<td>Body Mass index-for-age</td>
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<tr>
<td>CEO</td>
<td>Chief Executive Officer</td>
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<tr>
<td>CDC</td>
<td>Centre of Disease Control</td>
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<td>EN PA</td>
<td>Enrolled Nurse A Participant 1</td>
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<td>GDM</td>
<td>Growth Development monitoring</td>
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<td>G=Growth monitoring, O=Oral rehydration therapy B=Breastfeeding, I=Immunisations, F=Female reproduction, F=Family spacing and F=Food supplements</td>
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<td>DoH</td>
<td>Department of Health</td>
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<tr>
<td>MUAC</td>
<td>Mid upper arm circumference</td>
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<td>NCoHS</td>
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<td>PB P2</td>
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<td>South African Nursing Council</td>
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<td>SAQA</td>
<td>South African Nursing Qualification Authority</td>
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<tr>
<td>UNISA</td>
<td>University of South Africa</td>
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<tr>
<td>UNICEF</td>
<td>United Nations International Children's Emergency Fund</td>
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<td>WHO</td>
<td>World Health Organization</td>
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<tr>
<td>WFH/L</td>
<td>Weight-for height /length</td>
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<td>WFH</td>
<td>Weight-for height weight-for-age</td>
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<td>WL</td>
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<td>WA</td>
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CHAPTER 1

ORIENTATION TO THE STUDY

1.1 INTRODUCTION

Monitoring child health and development is important to reduce the leading causes of morbidity and mortality. The latter could be achieved by early identification of childhood diseases that could impact negatively on optimal development of children globally, especially in sub-Saharan Africa as stated by the United Nations Department of Economic and Social Affairs (UNDESA 2012:27). Growth monitoring is perceived as the single measurement, inexpensive, non-evasive technique that best defines the health and nutrition of children, and indirectly providing the quality of life of a population (De Onis & Yip 1996:16). New developments around improving the health of children and mothers using the primary health care (PHC) approach have emerged since the Alma Ata congress in 1978. Piaget’s theory (1920) describes different stages of children’s cognitive development, namely, under: sensory motor thought: Birth to 2 years, pre-operational thought (2-7 years, concrete operational thought: 7 to 12 years and formal operational thought: 12 years and above (McLeod 2015:10).

The World Health Organization (WHO) developed universal growth standards to monitor growth and development through measurements of anthropometry (APM) of children globally for early detection of malnutrition (WHO 2008:1).

There is congruency between the WHO and the United Nations International Children’s Emergency Fund’s (UNICEF) view, regarding what APM values refer to in child growth and development monitoring (GDM). They refer to weight for age of children 6 to 60 months both girls and boys, weight-for-length/height with the cut off of -3 Z-scores standard deviations (SD) and mid upper arm circumference (MUAC) cut off of 115mm for defining severe acute malnutrition (UNICEF 2009:10; WHO 2013:198). The WHO standards prescribe the basis of raising children according to fundamental health promotion practices for optimal physiological growth. They were consistent with current nutritional recommendations that favour achievement of full genetic growth potential. Monitoring of growth and development of children were measured between birth and 24
months, and they demonstrated similar growth among varied cultures and ethnic backgrounds (Secker & Colby 2004:21-22). Even though the WHO (1995:10) recommended the present and future uses and interpretation of APM values in relation with specific objectives of their use, there was a perception that the measurements were not being adequately used nor supported by country policies (WHO 2012:1). Yang and De Onis (2008:1) recommend these standards for international comparisons and secular trend analysis of malnutrition. Hence, the co-ordination and development of new children growth standards in 2010 by the WHO, which replaced the National Centre of Health Statistics (NCHS) and the WHO for growth reference (WHO 2011:250).

According to the WHO (2011:250-251), 140 countries launched and adopted the standard charts in 2006. These standards were designed to assess whether children were developing as they should, whether efforts to reduce child mortality and disease are effective or not and to determine that children born in different countries have the potential to develop within the same range of height and weight for age. The WHO standards are used in public health and medical field by government health organisations to monitor the well-being of children linked with the motor developmental milestones. The WHO and UNICEF (1981; 1983) cited in Hatting, Dreyer and Roos (2012:236) add that the development of growth monitoring, oral rehydration, breastfeeding, immunisation, female education, food supplements, and family spacing (GOBI-FFF) are important principles to address mother and child health in PHC settings. The idea was meant to emphasise these principles in the PHC programmes globally.

Routinely in South Africa (SA) starting at six weeks post-delivery, clinic nurses attend to children at the PHC wellness baby clinics for GDM to detect growth faltering early and assess the developmental milestones. In addition, the Department of Health (DoH) in SA adopted the use of the Integrated Management of Childhood Illnesses (IMCI) to support GDM. Although the PHC clinic nurses monitor developmental milestones of children, it is not clear how well or effectively their role is practiced to improve the quality of the health of children (Berry, Biersteker, Dawes, Lake & Smith 2013:50).

Therefore, in this study, the focus was to investigate how clinic nurses currently in the public health sector practice their role regarding GDM and interpretation of APM values
of children in the Tshwane PHC setting in SA. A qualitative, explorative, descriptive, and contextual approach was used to investigate the study phenomena. The study was conducted in two phases based on the three steps of the research process.

1.2 STEPS OF THE STUDY

The first phase included the whole process of doing research and a comprehensive literature review that was done. The second phase involved formulation of guidelines for the practice revitalization of the role of the clinic nurse regarding GDM of children in the PHC setting. The study was conducted in three steps in a research process.

Step 1 of the research process comprised planning and conceptualisation of the study. The EBSCOhost was the commonly consulted database. Journal articles particularly the WHO publications including research and discipline books and related dissertations and theses were consulted. The literature review included studies that were conducted internationally, sub-Saharan countries, Africa, and South Africa, especially by the WHO as they spearheaded these initiatives.

All three of these steps demonstrate the pathway in which the research followed from the beginning to the end of the study.

The first step was a very brief phase of the study and it involved conceptualising and planning of the study.

The second step involved constructing the research methodology, which focused on a qualitative non-experimental, explorative, descriptive, and contextual research design. The research methods that were used, included study population, sampling, sampling technique, data collection, data analysis, ensuring trust worthiness, and ethical considerations. During this phase, the researcher gained the privilege of entering the PHC clinics and developing rapport with the facility managers as gatekeepers. The researcher also met with the Tshwane Health District Research Committee and District managers to negotiate entry into the study context.

During the third step, the researcher engaged in data collection by conducting face-to-face interviews, analysis, and discussion of the findings and formulation of guidelines.
Conclusions and recommendations were also made based on the study findings. Implications of this study to clinical practice, nursing education and research were indicated.

1.3 BACKGROUND AND RATIONALE ABOUT THE RESEARCH PROBLEM

1.3.1 The source of the research problem

The researcher is qualified in child nursing science with 19 years’ experience of working in paediatric units where supervision of GDM of children is mostly practiced. Most of the children who were admitted from the hospital clinic came in with growth and development faltering indicated by severe malnutrition and some of them as re-admissions which seemingly indicated that there was a gap or implicit information missing with regard to how clinic nurses practice GDM. Although childhood diseases are preventable by early identification of growth faltering, the high occurrence of morbidity and mortality among children under five years old particularly was observed to be high.

Kim and Choeu (2009:1) report that the nurses were willing to do GDM but were lacking the required skills. Similarly, a study conducted in Nigeria by Olugbenga-Bello, Asekum-Olarinmoye and Adeomi-Adeyeye (2010:30) described the role of PHC workers in monitoring growth and development but lacking the skill to interpret its significance. Based on those findings, recommendations were made for training and development on that skill.

1.3.2 Background to the research problem

PHC has been formed to be the driving approach for health care delivery services in all the nine provinces of SA including the Gauteng Province (GP) since its adoption by the Government of National Unity post 1994. Different PHC services are offered in the whole Gauteng Province as non-fixed clinics including 55 satellite clinics and visiting points; fixed clinics including provincial and local government facilities are 307. Community health clinics (CHCs) are 34; clinics and CHCs sub-total are 341 as well as 10 District hospitals as stated by the Gauteng Department of Health (GDoH 2014:34).
Statistics from the GDoH (2014:13) reflected that 11.1 million (22%) people of the total South African population lived in the Gauteng region. Ninety seven percent (97%) of people lived in urban areas with high levels of social inequalities. Twenty three percent (23%) of these were unemployed and twenty two percent (22%) lived in informal housing or settlements. Therefore, the demand for provision of health services was a challenge to the DoH hence the intention to introduce the National Health Insurance policy (NHI 2011) to cater for the needs of all people.

District health services were offered in the City of Johannesburg, West Rand, Ekurhuleni, Sasolburg, Tshwane, and Metsweding. For the Tshwane Health District, the services are as follows: Non-fixed clinics are 14, fixed clinics are 45, CHCs are 10, clinics and CHCs are 55 as well as five district hospitals. There is also one regional hospital used for PHC services (GDoH 2014:34).

Health services in Gauteng are provided through the five districts, tertiary specialised and central hospitals, including CHCs and local clinics both at rural and urban areas that are under the DoH and the local government (GDoH 2014:13). According to the Health Professions Act, Act No 56 of 1974 (2013: 33), the Gauteng region include Johannesburg; Odi; Tshwane Central, North and South sub-districts. Tshwane Central has 28 clinics; north has 13 and south has eight clinics. The Odi sub-district has 17 clinics, three of which were used for this study: including one hospital clinic. All clinics in the PHC setting had to implement the primary health package (Wentzel,2008:1). The clinic nurses form part of the staff establishment of the clinics in the PHC setting. The PHC package was published in SA by the DoH (DoH 2001a) in 2001, with the comprehensive PHC package (DoH 2001b) and (DoH 2001e) clarifying services to be provided, staffing requirements, necessary equipment, drugs and related protocols (Van Rensburg 2004:428). Application of the UNICEF’s child survival initiative included, among others, growth monitoring, breastfeeding initiative and immunisations coverage of children less than one year of age from 20% to 79% by 2006 globally (Setswe, Naudé & Zungan 2011:6).

The sub-Saharan Africa region was reported by UNICEF (2012:4) to have improved in the survival of children from 1999-2006 owing to the expanded programme on immunisation (EPI). However, an increase in infant mortality rate and reduced life expectancy was still reported to be high (Schaay & Sanders 2008:60). Reports of
decline in child mortality globally were estimated from 12 million in 1990 to 7.6 million in 2012, with annual declines rising from 1.8% in 1990-2000 to 3.2% in 2000-2011 (UNICEF 2012:4).

Millennium Development Goals (MDGs) 4 and 6 had envisaged to reduce child and maternal mortality rates by two thirds by the year 2015. They formed part of the priorities identified by the DoH to tackle health initiatives especially those affecting children. The National Health System Priorities 2009-2014 (the 10-point plan) was aimed at strengthening the health care delivery and transformation in SA, through the Negotiated Service Delivery Agreement (NSDA) of the NDoH and the Draft Service Transformation Plan (2010-2020) in the GDoH (2014:14). Although successes were reported in life expectancy from 2005-2011, rollout of antiretroviral treatment, reduction in maternal and child mortality in AIDS-related deaths and HIV infections and improvement in tuberculosis (TB) quadruple disease burden challenged the health care delivery in Gauteng including how PHC is delivered (GDoH 2014:5). Despite reported improvements, the decline appears to be insufficient to meet the MDG 4, intended to reduce mortality owing to malnutrition of the under five year old children by two thirds between 1990-2015 (Boschi-Pinto Velebit & Shibuya 2008 cited in the WHO Bulletin 2012:1).

Although malnutrition is preventable if detected early in the PHC facilities, it was perceived as an exacerbating factor which contributed to child mortality rate even post-2015. Therefore, the focus is now on the United Nations’ Sustainable Development Goals (SDGs). Several factors in the strategies which had an impact on PHC delivery in Gauteng included good governance, human resource management and infrastructure development (GPDH 2014:12).

Some of the challenges that affected how the nurses in the PHC facilities practiced their roles such as GDM and APM values included finance and financial management to maximise output with limited resources. The need for human resource management and development issues such as staffing and addressing staff problems; physical infrastructure and good referral system was still a challenge (GPDH 2014:14).

According to the GPDH (2012-2013) report, the Gauteng health system had crises that led to morbidity, disability, stillbirths, and death of children. Shortage of childhood
resources included vaccines for immunisation, namely, Diphtheria, Tetanus, Pertussis, Haemophilus Influenza type B, and Polio, Rotavirus, and Pneumococcal vaccines (GDoH 2012-2013:7). Vaccines were meant to protect children from preventable communicable illnesses. If not prevented through immunisations at the PHC settings, these illnesses affect the GDM of children negatively as well as how the clinic nurses practice their role in GDM and APM values of children.

In 2015, the report about Operation Phakisa Ideal Clinic Realisation was initiated by the South African NDoH. The initiative was aimed at transforming all public clinics into ideal clinics within the next three years for provision of good quality care. The facilities were meant to promote health, prevent illness and further complications through early detection and treatment.

Steinhoebel, Massyn and Peer (2015-2016:31) report that the key performance tools under best or worst performer were used to determine ideal clinics in the nine provinces of SA. Three clinics in Tshwane, Gauteng Province, which were part of the PHC setting for the study data collection were rated under the worst performers in relation to infrastructure, adequacy staff, medicine, supplies, and good administrative processes.

Health care personnel in the PHC settings are key role players in the implementation of a comprehensive PHC which is crucial for its sustainability through enhancement from the DoH. There are different types of categories of nurses trained under the South African Nursing Council (SANC) regulations of the Nursing Act, Act No. 33 of 2005. The staff compliment of PHC clinics include professional nurses (PN) enrolled nurses (EN) and enrolled nursing assistants (ENA), each with a different role according to the position they hold in the clinic. According to Wentzel (2008:2), the number of nurses of each category varies according to the size of the hospital or clinic and the population it serves.

The role of the PN and other nurse categories who are registered with the SANC are outlined in the scope of practice in relation to the Nursing Act, No 33 of 2005 (SA 2005: 25). The role of the clinic nurse in GDM of children is guided by the country’s profile of health indicators. These were established and defined by the WHO Growth standards median for global use as follows: Underweight: weight for age < −2 standard deviations (SD), Stunting: height for age < −2 SD, Wasting: weight for height < −2 SD, and
Overweight: weight for height > +2 SD. These standards are to be adhered to in GDM of children.

A study conducted by Mda, Joop, Van Raaij, De Villiers, MacIntyre and Kok (2010:11) on the impact of giving micronutrient supplements to children with HIV infection revealed how the children’s APM values were affected. The findings reflected growth and development as well as health deterioration as these children grew older in relation to their weight-for-age and height indicated by wasting, stunted growth and continuing medical conditions like diarrhoea. Mda et al (2010:11) recommend regular follow-up of these children with monitoring of APM values for improvement of their growth and development. Similarly, recommendations by Patrick and Stephen (2008:26) support the stated report as a way of “saving the children” initiative. In 2010, stunting was reported to be a major public health problem globally despite estimated decline in developing countries (De Onis, Blossner & Borghi 2011:1). However, in sub-Saharan Africa and East-Asia, stunting was reported to be stagnant. Stunting influences growth and development of children. Therefore, constant monitoring of APM values and accurate interpretation in PHC clinics is imperative. Hatting et al (2012:208) recommend that PHC norms and standards should be incorporated in planning and implementation in practice and observed at all times in PHC settings.

The Alma Ata Conference (1978) as cited in Hatting et al (2012:70) described the eight elements comprising PHC practice which is the umbrella under which GDM and APM values of children is provided. These elements, according to Hatting et al (2012:70), include promotion of adequate nutrition which is offered by educating the community about what nutrition is and the importance of adequate balanced nutrition for people of all age groups to prevent malnutrition. Use of safe water or water purification is emphasised to prevent diarrhoeal diseases. Therefore, communities are encouraged to drink clean purified water, or purify it by boiling it or using chemicals. Basic sanitation in the form of using safe toilets, hand washing and good hygiene is emphasised through health education and advocacy for communities in need of ablution facilities. Mother and child services such as family planning for child spacing, antenatal services, and immunisation for pregnant women, peri-natal services during childbirth and post-natal services post-delivery are offered. Children are immunised against major infectious diseases such as Polio, Hepatitis, Diphtheria and others according to the immunisation schedule from birth to school-going age. Prevention and control of diseases such as
cholera or malaria by providing mosquito nets and health education is offered to control health challenges of smoking cigarette and alcohol abuse (Hatting et al 2012:70-78).

Several challenges emerged that weakened the health system as well as the effective implementation of PHC, such as shortage of trained PHC nurses, doctors and other health workers as well as poor human resource development. Material resource shortage in the form of treatment and technology also were identified as having contributed to poor PHC sustainability.

1.3.3 Research problem statement

Monitoring child health and development is important to reduce the leading causes of morbidity and mortality owing to malnutrition. Malnutrition has been identified as an exacerbating factor in child mortality globally, especially in sub-Saharan Africa as stated by the UNDESA (2012:27). Health challenge such as malnutrition which is preventable, is still reported to be contributing to an increased child mortality rate and affect child growth and development significantly, especially in sub-Saharan Africa and East Asian countries (Hobbs & Bush 2014:5).

Despite the fact that it can be identified early through accurate and reliable APM values during child GDM and interpretation of values, malnutrition remains a global problem. Therefore, the ability of clinic nurses to accurately monitor malnutrition or the impact of malnutrition on GDM of children is crucial in order to identify growth faltering early and prevent complications such as severe acute malnutrition. Fifty two (52) million children under five years in the world today are reported to be suffering from acute malnutrition (Hobbs & Bush 2014:5). One million of these children die each year directly owing to acute malnutrition which is preventable (Hobbs & Bush 2014:5). One in 12 children under five years lives in sub-Saharan Africa and the developing regions of Asia (Hobbs & Bush 2014:5). Challenges of sustaining the use of PHC model of health care delivery led to the initiative by the South African DoH to re-engineer the current PHC system and related policies (DoH 2011:1) in order to meet the MDGs by the year 2015 (United Nations 2010:1).

The findings of a study conducted by Mudau (2010:113) regarding the use of the Road to Health Chart (RHC) revealed that nurses were not fully implementing the standards
and norms of the RHC as they were only monitoring the weight routinely instead of the other GDM measurements of children. As a result, poor growth monitoring resulted in failure to identify problems like underweight, or failure to thrive is detected through weight that need early detection and intervention. Seemingly, poor nurses’ skills and knowledge of growth monitoring affected the DoH’s goal to reduce infant morbidity and mortality to fulfil the MDG 4. Owing to failed MDG 4, the focus of the South African government was shifted to Sustainable Development Goals (SDGs) Goal 2 which focuses on food security and improved nutrition and Goal 3, which focuses on ensuring healthy lives and ensuring well-being at all ages. Findings from a study conducted by Kitenge and Govender (2013:40-46) indicate that the majority of the PHC professional nurses stated that the challenges faced in GDM of children in the PHC facilities were staff shortage of resources, work overload and poor knowledge on how to identify malnutrition.

The PHC strategy was weakened by the disease burden such as HIV and AIDS, Malaria, TB and non-communicable diseases which are preventable as well as malnutrition. However, the challenge remained that 19 000 children under five who died daily, amounting to 1.2 million deaths every month from preventable causes such as malnutrition, especially in Sub-Saharan Africa and South East Asia (UNICEF 2012:9).

The exodus of nurse practitioners from either public to private hospitals or to countries outside SA exacerbated the situation in the PHC context. Most patients with chronic diseases went to the hospitals for treatment, increasing the workload for the already burdened staff. The SA government embarked on revitalisation of the institutions and downsizing some provincial hospitals with step down programmes. This was meant to accommodate patients with debilitating diseases that needed palliative medical intervention such as the case of cancer patients in need of radiotherapy and chemotherapy (Health Systems Trust 2008:23).

There are therefore apparent gaps in the practice role of clinic nurses regarding the identification of malnutrition early that needs empirical investigation. There might be implicit information in the current practice and role of the clinic nurse regarding GDM, APM values and interpretation of the values that can help clinicians to transform the situation for better health outcomes for children and revitalise the role of nurses in this regard. Therefore, the implication of the role of a nurse in GDM and APM values is
crucial to identify children at risk for underweight, stunted growth and wasting owing to poor diet which predisposes them to opportunistic infections (WHO 2010:1).

The theoretical statement for this study is “Practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care setting.”

1.4 RESEARCH PURPOSE

A research purpose is defined as a clear, concise statement of the specific goal or aim of a study, which is generated from a research problem (Grove, Burns & Gray 2013:74). Creswell (2014:123) defines a research purpose as a statement that establishes the intent of the entire study and it needs to be clear, specific and informative.

The purpose of this study was to explore and describe how clinic nurses practice their role regarding GDM and APM values of children and interpretation of their values and related challenges in the PHC setting. It was envisaged that the findings of the study would be utilised to develop guidelines for revitalisation of the practice role of nurses in the clinics.

1.4.1 Research objectives

An objective to a qualitative study as defined by Burns and Grove (2009:166) is described as a clear, declaring statement that is expressed in the present tense. The objectives of this study were to:

- explore and describe the clinic nurses’ practice role regarding growth and development monitoring of children in the Primary Health Care settings in Tshwane, Gauteng Province
- examine how clinic nurses, in their practice role, interpret the APM measurement values for early detection of malnutrition among children
- explore and describe challenges encountered by clinic nurses’ practice role regarding growth and development monitoring of children in the Primary Health Care settings in Tshwane, Gauteng Province
• develop guidelines on how the practice role of clinic nurses regarding GDM of children can be revitalised in Tshwane, Gauteng Province.

As this is a qualitative study, a central theoretical statement was formulated as an unstructured grand tour interview question which was posed as follows: “Tell me, how can your practice role as a clinic nurse be revitalised regarding growth and development in the monitoring of children where you are working? This question was formulated based on the PICO approach with questions for conceptual clarity of what is to be investigated in this study (Grove et al 2013:703). The acronym stands for the following:

P – Population in this study referred to clinic nurses which were Professional nurses (PNs) and Enrolled nurses (ENs).

I – Intervention in this study referred to the guidelines developed with an intention to contribute to the revitalisation of the practice and role of clinic nurses for better health outcomes for children.

C – Comparison, the target population of this study, which is clinic nurses, was compared with the experiences of the same population in the global community as identified in the literature and the standards on the phenomena set by the WHO and UNICEF.

O – Outcome of this study was to identify the current practice role of clinic nurses with regard to GDM and APM values of children and interpretation of values to revitalise their role and reduce preventable malnutrition among children.

1.4.2 Research questions

• What is clinic nurses’ role in the monitoring of child growth and development in PHC settings?
• How do clinic nurses in their practice and role interpret the APM measurement values for early detection of malnutrition among children?
• What are the challenges encountered by clinic nurses in the PHC settings in their practice and role regarding GDM and APM values of children.
• What guidelines can be developed on the practice revitalisation of the role of clinic nurses regarding GDM of children?

The findings of this study has significant implications in clinical practice.

1.5 SIGNIFICANCE OF THE STUDY

Findings of this study will be significant in identifying existing gaps in the practice role of clinic nurses regarding GDM of children in the PHC settings and the interpretation of APM values for quality decisions regarding the nutrition of children. From the findings, guidelines were developed that will contribute to the revitalisation and improvement of the practice role of nurses. The study findings will also help nurse clinicians, educators, policy makers, researchers in making policy related decisions to improve current nutrition treatment protocols, policies and future appropriate cost effective referrals to dieticians and hospitals. Based on these findings, family nutrition information centres can be established in the communities working with malnutrition prevention teams from the local clinics. These centres can provide clinical learning opportunities for local school children and other health and nursing students working in mother and child services.

Further valuable contribution will be made to the body of nursing research knowledge for curriculum revision and advanced research.

1.6 CONCEPTUAL AND OPERATIONAL DEFINITION OF TERMS/CONCEPTS

• Anthropometric measurements (APM)

Anthropometric measurements are defined as a set of non-invasive, quantitative techniques to determine an individual's body fat composition by measuring, recording and analysing specific dimensions of the body such as height and weight; skin-fold thickness; and bodily circumference at the waist, hip and chest. Anthropometric measurements are used to assess the size, shape and composition of the human body (WHO Growth Charts 2010:3).
In this study, anthropometric measurements refer to the process of routine measurements of weight, height/length, head circumference, mid upper arm circumference (MUAC) and calculation of BMI percentiles of children under five years by clinic nurses.

- **Child**

The United Nations Convention on the Rights of the Child resolved in 1998 according to article 49 the definition of a child as "a human being below the age of 18 years" unless under the law applicable to the country of the child, in Article 1 (United Nations Human Rights 1990:2). According to the South African Children's Act, Act No 38 of 2005, a child means "a person under the age of 18 years". Freshwater and Maslin-Prothero (2005:120) define a child (plural children) biologically as a human being between the stages of birth and puberty and legally referred to as a minor, otherwise known as a person younger than the age of maturity.

However, in this study, children refer to all boys and girls between birth and 12 years of age, who may be sick or not, who consult PHC clinics accompanied by their parents or guardians.

- **Growth and development monitoring (GDM)**

Growth and development monitoring is defined by the WHO (2010:1) as an assessment of APM values of children: referring to, weight-for-height (WH), weight-for-length (WL), weight-for-age (WA), BMI-for-age, head circumference-for-age, arm circumference-for-age and Triceps skin fold-for-age using international growth standards and percentile charts (WHO 2010:1).

Consideration of weight-for-age, weight-for-height and MUAC are measured from birth to 5 years in both girls and boys for early detection of severe acute malnutrition (SAM) using Z-scores and standard deviations (UNICEF 2009:10; WHO 2013:379).

According to Hockenberry and Wilson (2011:139), GDM refers to measurement of physical growth in children linked to physiological, neurological, cognitive, and nutritional immunological aspects of health assessment which are key elements in
evaluation of their health status. These elements are outlined in the WHO developmental milestones growth and development assessment charts for children (WHO 2013:198).

In this study, GDM referred to assessment of children who attended PHC clinics for the assessment of their weight, height, head circumference, stature in relation to age, and body proportions using tools such as percentile and BMI charts.

• Nurse

A nurse is a person registered with the SANC under the Nursing Act under section 31 (1) of the Nursing Act, Act No 33 of 2005 (South Africa 2005), whose scope of practice is stipulated in the regulation R2598.

The concept ‘nurse’ refers to different categories of nurses in SA, namely, PNs, ENs and EANs registered under the Nursing Act, Act No 33 of 2005 (South Africa 2005). The SANC is currently changing the curriculum and regulations in order to clarify competencies required for different categories of nurses to be in line with those of important bodies such as South African Qualification Authority (SAQA) and Department of Higher Education and Training (DHET).

In this study, clinic nurses refers to all nurses in their different categories PNs, ENs and ENAs working in the PHC setting of the designated hospital and the clinics at which the study was conducted. However, in this study, only PNs and ENs were interviewed because the ENAs were not available on the day of data collection.

• Practice

The Concise Oxford English Dictionary (2008:1126, sv “context”) defines practice as an act of performing an activity or exercising a skill repeatedly or regularly in order to acquire, maintain and improve proficiency in it, being engaged in a particular profession. Brink, Van Der Walt and Van Rensburg (2014:21) state that practice in nursing is characterised by prescriptive actions for health care purposes. In contrast, McEwen and Wills (2007:413) perceive practice validation as the basis upon which nursing theory must be developed.
In this study, practice refers to the tasks, duties, responsibilities, and actions of the clinic nurses according to the PHC elements such as: growth monitoring, oral rehydration, breastfeeding, immunisation, female education, family spacing and food supplements (GOBI-FFF) principles (Hatting et al 2012:236; UNICEF 2014:1). Clinic nurses care for children who consult at the PHC settings with specific reference to their role of monitoring GDM and practice in APM interpretation of the values using skills, knowledge and their experience.

- **Primary health care**

Primary health care is defined as essential health care based on practical, scientifically sound and socially acceptable methods and technology made universally and socially acceptable and accessible to individuals and families in the community. This model of health care delivery encourages full participation at a cost that the community and the country can afford to maintain people’s health at every stage of their development (Hatting et al 2012:4; WHO 1978:1). Primary health care is further defined as an environment in which people live, access services and the extent to which they can take responsibility for their health (Van Rensburg 2004:9).

According to Setswe et al (2011:5), the PHC is defined as an integral part of health care for everyone by everyone, representing the first level contact of the community within the health care system, provided by a multi-sectoral and multidisciplinary health care team, striving towards promotive, preventative, participatory, devolved and affordable care (Hatting et al 2012:236).

In this study, PHC refers to the care that was given to the children who were brought to the PHC setting by their parents for consultation or follow-up regarding GDM and APM values and interpretation of these values by the clinic nurses for further management and better quality of life.

- **Revitalisation**

Revitalisation means to restore or give new vitality or vigour, to give new life and or animation (Concise Oxford Dictionary 2008:1232, sv “context”). The concept
‘revitalisation’ is further defined as a process of re-activation, re-birth, re-generation rejuvenation, restoration and renewal from (Etymology Dictionary 2010, sv “context”).

In this study, revitalisation means to enhance and or reactivate the role and practice of PHCNs regarding GDM and APM values of children and the interpretation of the values thereof. It is with an intention to address the related health challenges in a way that brings evidence of improved quality care for children and reduction of morbidity and mortality rates particularly owing to malnutrition.

- **Role**

Freshwater and Maslin-Prothero (2005:528, sv “context”) define a role as a way of behaving or social prescription for a person with a specific position in a group in a particular setting. According to Mc Ewen and Wills (2007:282), “role” refers to normative expectations and requirements, such as culturally defined behavioural rules that are attached to positions in social organisations such as family. The role of nursing in King’s theory is important for nurses and patients to participate in goal setting and goal attainment (Geyer, Mogotlane & Young 2009:15). Peterson and Bredow (2013:211-212) identified different roles played by nurses under stranger, resource person teacher, leader, surrogate, and councillor.

In this study, role refers to the part played by clinic nurses in demonstrating nursing care skills, activities such as GDM and APM values of children and interpretation of the values thereof in order to detect malnutrition early in their practice and guide the parents or guardians concerning nutrition matters.

**1.7 THEORETICAL FOUNDATION OF THE STUDY**

Grove et al (2013:695) define a framework as a logical structure of meaning that is used in an abstract way to guide the researcher in developing the study qualify linking of the findings with the body of knowledge for the profession.

Theoretical framework in a study is based on a specific conceptual model known as the theoretical framework (Polit & Beck 2012:128). Qualitative studies do not normally use a framework for grounding or as point of base or departure, but in this study Wentzel’s
(2008) PHC model based on Donabedian’s model (1988) as exhibited in (Figure 1.2) was used for conceptual clarity and guidelines in data collection and analysis processes.

### 1.7.1 Primary health care models

A model is defined as a set of concepts that provide a causal explanation or prediction of how variables interact to produce framework to examine a phenomena (Wentzel 2008:30). Wentzel’s (2008:29) PHC model as an integrated management environment with system’s approach putting emphasis on the interdependency of structure, process and outcome includes aspects such as macro, market and microenvironment as illustrated in Figure 1.1.

<table>
<thead>
<tr>
<th>1</th>
<th>Macro-environment:</th>
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<tbody>
<tr>
<td></td>
<td>Economical environment (interest rate, inflation)</td>
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<td>Social environment (culture and values)</td>
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<td>- Technological environment (expertise, innovation)</td>
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<td></td>
<td>- Physical environment (facilities, climate, infrastructure)</td>
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<td>- Political environment (political system, law)</td>
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<th>Market/Task-environment</th>
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<tr>
<td></td>
<td>- Opportunities and threats (patients, clients and nurses)</td>
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<td>- Competition (other clinics, hospitals)</td>
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<th>3</th>
<th>Micro-environment</th>
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#### 3.1 PHC functions

<table>
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<th>Structures</th>
<th>Process</th>
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<tbody>
<tr>
<td>- Administration management</td>
<td>- Procedures</td>
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<tr>
<td>- Patient care</td>
<td>- GDM anthropometry- interpretation of values</td>
</tr>
<tr>
<td>Support services</td>
<td>- Marketing management</td>
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<td>- Public relations</td>
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<td>- Financial management</td>
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<th>Outcomes</th>
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<tr>
<td>- Early detection of malnutrition</td>
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<tr>
<td>- Reduced under-five mortality</td>
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<tr>
<td>- Improved quality of child care in the PHC settings</td>
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<tr>
<td>- Revitalised PHCNs practice role in GDM anthropometry interpretation of values and addressing related challenges</td>
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</tbody>
</table>

**Figure 1.1 Macro, market and micro-environments in the PHC setting**

(Adopted from Wentzel 2008:29)
Wentzel's (2008:29) PHC model was described as a framework of PHC system delivery from the macro, market and microenvironment perspective, from the viewpoint of structure, process and outcomes. Therefore, the model was used to clarify the context within which the study was conducted in relation to the framework of the PHC system delivery from the macro, market and microenvironment perspective and from the viewpoint of structure, process and outcomes. Kunkel, Rosenqvist and Westerling’s (2007:1) health care delivery system design relate to Wentzel's PHC model (2008:29), and the Donabedian’ model (1988) as cited in Nicholson (2008:45-47) on structure, process and outcome. The model includes elements of macro-environment that relates well to the National Health Authority and the DoH in SA where the economic and the inflation interest such as budget for resources affect the study context and impact on how the GDM of children is delivered by the clinic nurses.

Macro-environment formed the economic environment related to inflation interest rates that had a bearing on how PHC services were funded and resourced in line with the political and the legal systems related to child health.

The social environment related to the culture and values of both the consumers of health and providers. Therefore, the socioeconomic demographics of the clinic nurses revealed part of the complement in the PHC settings. The expertise in technology and innovation of the nurses was based on how they practiced GDM of children such as weight, height/length, height, and interpreted APM values. The opportunities for practice revitalisation of the role of the clinic nurses and the challenges/threats related to the growth and development of children were revealed.

The microenvironment described the study settings within which the clinic nurses practiced their role regarding GDM of children and interpretation of the values. The technological environment within which the PHCNs operates has an influence on their expertise and innovation in relation to their practice and role. Furthermore, the physical environment such as the availability of facilities for the nurses, conducive environment and infrastructure influences how the nurses’ practice their work in the PHC setting. However, how the role of nurses regarding GDM APM interpretation and challenges encountered was explored and followed through the research process.
Adopting the PHC policy of the WHO 1978 by the SA government post-1994 after transforming the health care was a way of improving the health of the people. The political environment in SA has an influence on the health care service delivery through the DoH by establishing laws affecting health such as the Bill of Rights and Health Act. The SANC established the Nursing Act, Act No 33 of 2005 as amended, as well as the rules and regulations governing the training, competencies and policies regarding PHC practice.

Opportunities and threats such as financial issues influence the health market both positively and negatively. Good working opportunities or loss of staff because of threats such as poor income or lack of incentives has a bearing on the health outcomes of children cared for at the clinics. Each clinic is noted to have its own strengths and weaknesses that compete with other clinics or hospitals in terms of size, infrastructure, resources, and patient outcomes (Wentzel 2008:31).

Figure 1.2 Donabedian: Structure, Process and Outcome Model
(Adapted from Stanhope & Lancaster 2006:295)

According to Nicholson (2008:1), Donabedians’ *structure* and the organisational resources for provision of care relate to staff credentials and operating capacities such as staffing, staff training and development, human resource management, service organisation, and treatment protocols. Other measures identified include financial management, information system needs and performance assessments of skills, and knowledge of how to identify growth faltering and malnutrition. Gustafson and Hundt (1990) cited in Nicholson (2008:1) regarding the *process* in tasks done to and for the
children by the clinic nurses included growth development monitoring of weight, height, length, head circumference, BMI, and interpretation of APM values to identify deviation from the norm. Lastly, outcomes are perceived as desired states resulting from care processes such as early detection of malnutrition, reduced under-five mortality and improved quality of childcare in the PHC settings. The other outcome desired is the revitalization of the practice role of PHCNs in GDM and APM interpretation of values and addressing related challenges.

The application of the two models by Wentzel's (2008:29-33) PHC model and Donabedian model (1988) on structure, process and outcome provided a better base and link of study concepts with the development of the guidelines. Furthermore, they were used for conceptual clarity and guidelines in data collection and analysis processes. The microenvironment was the focal area for the study because of the natural setting in which participants were recruited and data collected in line with the elements of the Donabedian model (1988).

Meta-theoretical assumptions were used for further theoretical based on the classical propositions of Mouton and Marais (1994:9-16).

1.7.2 Meta-theoretical assumptions

Meta-theoretical assumptions used in the study were epistemological, ontological and methodological assumptions. The latter were used to define the context of the study underlying the use Meta-theoretical assumptions, which are also known as metaphysical assumptions. These are assumptions that underlie the use of theories or models or paradigms and are used to define the context of a study with the use of a single theory to another and one methodological approach to the other (Mouton & Marais 1994:192).

Assumptions are statements about the nature of certain things that are not observable or testable and remain hidden or unstated (Neuman 2011:52). Sources of assumptions include universally accepted truths such as theories, previous research and clinical practice. In research studies, assumptions are embedded in the philosophical base, study design and interpretation of findings (Grove et al 2013:41). Moreover, the recognition of assumptions by the researcher is their strength and not their weakness.
(Grove et al 2013:41). A positivist assumption says that there is a reality in every situation which exists with or without verification (Polit & Beck 2008:14). These assumptions also assume that for example, with regards to the practice role of clinic nurses, do the nurses understand the impact of malnutrition among children or under-fives? How do they experience it and what is not known; is it the actual description of the knowledge about GDM? What it is, how far does it go if values of APM values are not correctly interpreted and appropriate clinical decisions taken? What does it cover and to what extent? Assumptions influence the logic of a study, and their recognition leads to more rigorous study development. To this end, in this study, the epistemological, ontological, and methodological assumptions were considered.

**Epistemological** assumptions are statements that embody the ideal of science, namely, the quest for truth and knowledge (Mouton & Marais 1994:14). In this regard, the epistemological assumptions were as follows:

- Multiple realities exist with regard to the practice role of clinic nurses pertaining to knowledge, skills and activities such as GDM and APM values of children and interpretation of these values in order to detect malnutrition early and this can be captured by means of qualitative interviews.
- Narrative data can elicit an understanding of the meanings that nurses attach to how they apply their skills, knowledge and values in the context of providing care for children.
- Theories inductively generated from data are likely to offer insight, knowledge, enhance understanding and provide a meaningful guide to action, including establishment of needed guidelines.

**Ontological** assumptions, according to Mouton and Marais (1994:11-12), refer to the study of being or reality. The ontological assumptions underlying this study were as follows:

- Humans, including children, are essentially beings with diverse health needs.
- Human nature has a way to subject people to vulnerability as children are often vulnerable, which encompasses the need to intervene to reduce high morbidity and mortality among them.
• The health needs of children are often fulfilled within an organised system of framework whether formal or informal by a cadre of caregivers that are knowledgeable, skilled and able especially in times of illness or health challenge.

• Although it is difficult to ascertain when the truth has been attained, it is, however necessary to strive for reality as close as possible.

• All persons are valued regardless of their age to receive the best holistic care of high quality (Tjale & Bruce 2007:45).

Methodological assumptions, according to Mouton and Marais (1994:15-16), provide the ‘how’ of research. In other words, how should research be planned, structured and executed to comply with the criteria of science. It refers to the logic of implementing scientific methods in the study of reality. Methodological assumptions regarding this study were as follows:

• Human beings use language to attach meaning to phenomena and communicate the meanings to others.

• Qualitative research supports naturalistic inquiry to collect narrative data on reality, which is constructed by people.

• Qualitative research supports inductive reasoning to develop guidelines and which are based on the findings from the data.

Burns and Grove (2009:37) conclude that assumptions are embedded (unrecognised) in thinking and behaviour, and uncovering these assumptions requires introspection and a strong knowledge base in the particular field of study.

1.7.3 Inductive reasoning

Grove et al (2013:696) define inductive reasoning as reasoning emanating from a specific to the general premise in which certain instances are observed and combined to formulate a general statement. According to Moule and Goodman (2014:5), inductive reasoning refers to the process of making generalisations based on specific observations made out of facts (Brink et al 2014:5). Inductive reasoning assisted the researcher in this study to draw conclusion about the phenomena under study (Parahoo
2014:408). In addition, the guidelines were discussed through use of inductive reasoning from the conclusions made in the data findings.

1.8 RESEARCH DESIGN AND METHOD

The study was conducted in one hospital and three clinics in the PHC settings of Tshwane region. A qualitative, explorative, descriptive, and contextual research design was used. The research method or techniques applied were population and sampling, sample size, data collection, and data analysis.

Research setting

The research setting for this study was at three PHC clinics and a hospital in the City of Tshwane, Gauteng Province. A research setting is defined as the specific place where the research will take place and targeted participants recruited (Polit & Beck 2012:49). According to Brink et al (2014:59), a research setting refers to the specific place where data are collected based on the research questions, objectives and the type of data needed to address them. LoBiondo-Wood and Haber (2012:91) describe a research setting as an area or location where the recruitment of participants, data collection and the research study is carried out. The Concise Oxford English Dictionary (2008:131, sv “contexts”) refers to a research setting as the surroundings of a place or a location where an event happens.

The research methodology of this study included a brief discussion on the research design and method that was used to conduct the study based on the clarifying elements of the PHC health delivery model and the Donabedian approach of structure, process and outcome.

Research design

The research design of this study was qualitative, exploratory, descriptive, and contextual in nature. Qualitative research was conducted to gain view of what the practice role of clinic nurses was regarding GDM and APM values of children and interpretation of the values to detect malnutrition, related challenges and take quality decisions for better quality care outcomes. It was a non-experimental design which was
used to construct a picture of the study phenomenon, explore events as described by the participants and situations as they occurred in their natural environment at work where the interviews were conducted (LoBiondo-Wood & Haber 2012:195).

**Qualitative research design**

Qualitative research enabled the researcher to obtain in-depth understanding of how the practice role of clinic nurses can be revitalized regarding GDM of children in the PHC setting. According to Polit and Beck (2012:12-13), exploratory research refers to exploration of the nature of the phenomenon of interest to the researcher and the manner in which it manifest. Qualitative researchers explore varied dimensions of a phenomenon in order to have an understanding of ways in which research participants express it (Polit & Beck 2012:727). Researchers can enter a complex situation interacting with participants to seek a better understanding from their viewpoint (De Vos, Strydom, Fouché & Delport 2013:64).

**Explorative design**

Explorative studies are conducted to become familiar with a topic and lead to new insight and comprehension thereof (Babbie & Mouton 2012:79). The exploratory design was used to investigate the nature and the practice role of clinic nurses in the PHC setting by exploring their insight, comprehension and understanding of the study phenomena from their viewpoint.

**Descriptive design**

The descriptive research design provided the researcher with a picture of the situation as it naturally occurred in the clinics (Grove et al 2013:692). The grand tour question was addressed specifically in order to describe, analyse and interpret the phenomena. It also provided an accurate life situation that provided an accurate account of characteristics of different categories of clinic nurses in their working environment. This design allowed the researcher to discover meaning as constructed and described by the participants from their worldview (Burns & Grove 2009:34; Fouché & Schurink, 2013:321). The context of the research referred to the practice role of clinic nurses
within the PHC context and the macro, market and microenvironment and the related challenges.

**Research method**

Research method refers to choice made on relevant research steps, procedures and techniques to be adopted and followed to conduct a study. In this study, the research method that was used referred to aspects such as population, sample, sample selection method, sample size, data collection, data analysis, ensuring trustworthiness, and ethical consideration. The *universal population* of this study was all PNs and ENs working in PHC settings and having an experience on the role and practice of GDM and APM values of children in Tshwane. The *target population* was both the PNs and ENs who had some common characteristics and met the sampling criteria (Polit & Beck 2012:738). *Accessible population* was the PNs and ENs that were eligible and available on the day of data collection (De Vos et al 2013:223; Polit & Beck 2012:719). With regard to inclusion criteria, all the clinic nurses of all categories, both male and female, above 21 years of age, with two years or more experience in the PHC regarding the study construct were included. All the clinic nurses with less than two years’ experience in PHC and were younger than 21 years old whether male or female were excluded from the study (Basavanthappa 2007:190; Burns & Grove 2009:344; Polit & Beck 2008:338).

Only participants who willingly volunteered to participate in the study were purposively recruited to participate. Data were collected from the sample through in-depth-individual unstructured interviews, using an interview guide (Annexure E) until data saturation was reached at the 12th interview. Observation and field notes were also used as triangulation data collecting methods to ensure credibility of the findings. Observation of participants was used during interviews in data collection to make note of what was heard, seen, thought and experienced in the field (Streubert-Speziale & Carpenter 2011:42). Field notes were also used as they reflected a record of the unstructured observations made in the field, which were broad, more analytic and interpretive and were also included in the data that were analysed (Polit & Beck 2012:548). They were used to develop a memo which assisted the researcher on the development of the analysis codes.
The collection of data was commenced after permission was granted as anticipated during weekdays Mondays to Fridays or as pre-arrangement with the participants. Planning and execution of the data collection schedule was planned in such a way that it did not interfere with the PHC settings’ routine. A digital voice tape recorder was used to capture all the face-to-face interviews after consent was obtained. The 12 transcripts were of different sizes but had 81 pages including pages of the two transcripts of the pre-testing period with an average of 83 typed pages per interview. The grand tour question used was:

“Tell me, how can your practice role as a clinic nurse be revitalised regarding growth and development monitoring of children where you are working? It was used as a point of departure followed by probing questions.

Probing was done to facilitate and encourage the participants to tell more following their response using the following questions:

- What do you understand by growth development monitoring among children in the primary health care setting?
- How do you interpret anthropometric measurement values ingrowth development monitoring among children?
- What are the basic growth and developmental needs of children as addressed by the primary health care nurses?
- What role do you play regarding growth and development monitoring in the care of ill children brought to the clinic?

The interview tapes and notes taken during interviews were locked up in a safe and secured place that could be accessed by the researcher only. They would be kept for five years. Tesch’s eight steps of data analysis format were used to guide the analysis and interpretation of data and identify emerging themes, categories and sub-categories (Creswell 2009:186). The Atlas.ti computer software version 7.0 was used to help the researcher to manage and code data and form networks in data analysis (Polit & Beck 2012: 560).

Trustworthiness in this study was established by employing the criteria as suggested by Lincoln and Guba (1985 cited in Streubert-Speziale and Carpenter 2011:47-49) and
Polit and Beck (2012:584) which were credibility, dependability, confirmability, transferability, and authenticity of the findings.

*Credibility* refers to the confidence in the “truth” of the findings and it included increasing the probability of producing credible findings (Streubert-Speziale & Carpenter 2011:47; Polit & Beck 2012:172). In this study, credibility was enhanced through prolonged engagement by spending more time during interviews with study participants. Member checking and use of probing questions for more clarity on the research question and stated objectives were used (Burns & Grove 2009:231; Polit & Beck 2008:542).

Polit and Beck (2012:725) define *dependability* as a criterion for evaluating the integrity of qualitative studies, and how stable would the data be over time and over conditions. It was also related to questions and the logic behind the research process regarding its documentation for auditing purposes (De Vos et al 2013:420). In this study, an audit trail was developed to determine data dependability for an independent auditor to confirm and draw conclusions about data and the findings as to whether they are acceptable and dependable. The findings were audited for consistency and to ensure that if repeated they could yield the same results (Brink et al 2014:127).

*Confirmability* was ensured by the working together of the primary investigator, supervisors and the independent coder of data for data accuracy, relevance and meaning (Polit & Beck 2012:585). The research report was written in such a way that a clear audit trail could be done leading to the confirmation of the conclusions made (Brink et al 2014:127).

*Transferability* is the probability that the study findings can be meaningful when transferred to other similar settings or groups. In this study, transferability was ensured through thick description of the research process that was carried out so that other researchers can determine applicability of the study by replication (Streubert-Speziale & Carpente, 2011:47-49).

*Authenticity* refers to the extent to which qualitative researchers truthfully and honestly demonstrate that their data collection, analysis and interpretation is believable with no fabrication (Polit & Beck 2008:748; 2012:720). In this study, authenticity was achieved by ensuring that all data collection, data analysis processes were done with integrity.
and honesty. More importantly, the researcher adhered to the principles of scientific integrity by avoiding plagiarism and acknowledging all the sources utilised accurately.

Ethical principles were important guidelines for the researcher that were observed and upheld in relation to Bioethical research standards, including the institution of study and ethical standards as stipulated by the Research Ethics and Publication Committee. All ethical issues of importance in this study were observed concerning the protection of the rights of the study institution by obtaining ethical clearance (Annexure A) from the Ethical Research Committee of the Department of Health Studies at the University of South Africa (Unisa). Permission was also obtained from the Gauteng DoH (Annexure C). The rights of participants were protected by observing the Belmont Report (De Landa 2009:3) which outlined the importance of obtaining a written informed consent, respect of self-determination, ensuring confidentiality and anonymity, beneficence, non- maleficence and justice. Details of this section are presented in chapter 3.

Findings will be disseminated through presentation in conferences to likeminded groups and publication of articles from the thesis.

1.9 STRUCTURE OF THE THESIS

This thesis has been structured into the following chapters:

Table 1.1 highlights the content of discussions in the chapters. The chapters present the research design and method, and data analysis which culminate into the development of guidelines for clinic nurses concerning the revitalisation of their practice role.
Table 1.1  Overview of the thesis

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Title</th>
<th>Content</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Overview of the study and the research problem</td>
<td>This chapter presented the background information about the research problem, the research purpose, objectives, setting and grand tour question. An overview of research design and method, ensuring trustworthiness and ethical considerations was presented.</td>
</tr>
<tr>
<td>2</td>
<td>Literature review</td>
<td>A comprehensive literature review was done to investigate the study phenomena from authentic sources. Sources consulted referred to journal articles, discipline and research books, theses and dissertation regarding the study construct. Theories that guided the study were outlined.</td>
</tr>
<tr>
<td>3</td>
<td>Research design and method</td>
<td>The research setting, design and method which the researcher applied were discussed. The designs were qualitative, exploratory, descriptive and contextual. An overview of data collection and data analysis was described. Detailed discussion on trustworthiness and ethical consideration were provided.</td>
</tr>
<tr>
<td>4</td>
<td>Data presentation, analysis and interpretation</td>
<td>This chapter discussed how the qualitative data was generated, presented and analysed.</td>
</tr>
<tr>
<td>5</td>
<td>Discussions, conclusions and recommendations</td>
<td>Discussions in this chapter focused on the summary of findings, final conclusions arrived at, recommendations made and the scope and limitation of the study. Implications of the findings on clinical nursing practice, education and research was explicated. A reflective conclusion on how the researcher journeyed with the study was outlined</td>
</tr>
<tr>
<td>6</td>
<td>Development of guidelines</td>
<td>This chapter presented the development of guidelines with recommendations for practice revitalization of the practice role of the clinic nurses.</td>
</tr>
</tbody>
</table>

1.10 CONCLUSION

An introduction to the study problem, background of the research problem, statement of the research problem and the meta-theoretical assumptions was done. The major concepts and terms used in the study were briefly conceptually and operationally defined. The aim and purpose of the study, grand tour question, and the research objectives were described. The significance of the findings of the study was explored. An overview of the research design and method to be used in the study was introduced. A brief explanation of how trustworthiness and ethical considerations were ensured was
given. The scope of the study and possible limitations of the study were indicated to the best of the researcher’s knowledge. The thesis was presented over six chapters, as described in Table 1.1.

Chapter 2 provided an elaborate discussion on concepts; models and theories alluded to as the study progressed.
CHAPTER 2

LITERATURE REVIEW

2.1 INTRODUCTION

Qualitative studies do not necessarily need literature review. However, in this study, this chapter has been included for better conceptualisation of the theories and models alluded to. These models were used for conceptual clarity and guidance of the study from data collection, data analysis and development of guidelines. The literature reviewed formed an essential component of this study which was undertaken within an existing knowledge base on the study phenomena and contributed to a better research approach used scientifically. It also guided the researcher to be able to explain what and how the research was done. Different ways of obtaining research literature included: reading efficiently and effectively; the criteria and principles of organising information that was used in literature review relevant to a problem researched as stated by Mouton (2011:86).

Relevant search engines were used for literature review such as; books, journals, magazines, theses, dissertations, conference proceedings, google scholar articles, government publications, Acts and Regulations, library on line and hard copies, recommended database as well as the (Unisa MNUALL303/0/2014:37) for the Department of Health Studies for the current year.

According to Polit and Beck (2012:61), authors have different views regarding review of literature particularly for qualitative studies before collecting data, thinking that this might influence the focal phenomenon. However, other authors support the view on prior brief literature review to get general grounding of the study. Qualitative research is meant to find relevant literature based on the type of questions asked for individual or focus group interviews. There are different perspectives of qualitative research tradition. However, an exploratory descriptive contextual qualitative research approach was used in this study.
Babbie and Mouton’s (2014:122) view is congruent with Mouton (2011:87) that reasons for the review of existing scholarship in social studies are important to ensure that previous studies are not duplicated and to find out how theories and issues were conceptualised. In most cases, literature review is done to identify authoritative theories and models on the subject for guidance and not necessarily for theory development. The intention in this study was to find out what was most widely accepted as the research methodology.

In-depth literature review enabled the researcher to identify notable theories and models to guide data collection and analysis.

Mouton (2011:90) recommends the use of recent sources and retrospective ones to build up debates on how later studies built on earlier ones. For the purpose of this study, the researcher utilised sources of information from books, journals, magazines, theses, dissertations, conference proceedings, google scholar articles, government publications, Acts and Regulations, library on line and hard copies, recommended database.

2.2 ASPECTS RELATED TO THE PRACTICE ROLE OF THE CLINIC NURSES

Aspects addressed included health systems care, PHC models, and practice revitalisation of the role of the clinic nurses and GDM.

2.2.1 Health systems care

The health systems care was introduced in South Africa as a strategy to strengthen the current health care plan in which the PHC approach is used at entry level of health care service delivery. The practice of GDM of children is catered for by the clinic nurses in their role in the PHC setting which is part of the national health care delivery in the country.

According to the WHO (2009:1), the WHO and member states adopted the use of health policy and systems research (systems’ thinking) to improve health and health systems in developing countries. The South African DoH adopted the system’s thinking
policy by developing “Ten-point plan” through the Negotiated Service Delivery Agreement to strengthen the current health system plan from 2010-2014 (DoH 2011:3). Dennill and Rendall-Mkosi (2012:66) cited DoH (2011a:7) outlined the released “Ten-point plan” priorities as:

- Provision of strategic leadership and creation of a social compact for better outcomes
- Implementation of National Health Insurance
- Improving the quality of health services
- Overhauling the health care system and improving its management
- Improving human resource management, planning and development
- Revitalisation of health infrastructure
- Accelerated implementation of the National human immune deficiency virus (HIV) and acquired immune deficiency syndrome (AIDS), National Strategic Plan (2007-2011) and increased focus on the Tuberculosis TB and other communicable diseases
- Mass mobilisation for better health for the population
- Review of the drug policy
- Strengthening research and development

The South African Government intended with this Ten point plan to achieve outputs such as increasing life expectancy, decreasing maternal and child mortality, combating HIV and AIDS and decreasing the burden of disease and Tuberculosis (TB) and strengthen health system’s effectiveness and efficiency (Dennill et al 2012:66; DoH 2011:3). Childhood illnesses including HIV and AIDS may complicate and impact negatively on the growth and development of children. Therefore, continual GDM of these children by the clinic nurses is imperative to identify early growth faltering.

### 2.2.2 Primary health care

The WHO cited in Valentijn, Schepman, Opheij and Bruinjnzeels (2013:13) defined PHC as

“essential healthcare based on practical, scientifically sound and socially acceptable methods and technology made universally accessible to individuals and families in the
community 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. It forms an integral part of both the country’s health system, of which is the central function and main focus, and of the overall social and economic development of the community. It is the first level of contact of individuals, the family and the community with the national health system bringing health care as close as possible to where people live and work, and continuing health care”.

2.2.2.1 Primary health care history

The WHO initiated PHC and was endorsed at Alma Ata in 1978. Member countries globally adopted this approach to improve the health of the citizens (WHO 1978:7). Since the adoption of this approach from Alma-Ata by the South African government in 1994, clinic nurses, also previously known as community health nurses, have been key role players in implementing PHC strategies for countries globally, including in SA. Mother and child health became a priority for the DoH in SA to improve the quality of health aiming to reduce the mortality rates among women and children. Transformation of the fragmented health care delivery system prior to 1994 in SA was documented in the White Paper transformation of 1997 (South Africa 1997). This resulted in different health care delivery levels, namely, the national, provincial and the district level. The district level is regarded as the centre of PHC delivery linking the different clinic settings.

Before 1978, the health care was community oriented. Thereafter, the 1978 Declaration of the Alma Ata led to the adoption of the PHC where the components and the principles of comprehensive were against selective PHC approach. The UNICEF established the GOBI-FFF as an approach to be used globally in PHC to meet mother and child health needs. The Ottawa Charter of 1986s emphasis focused on the reorienting the health sector about the importance of Health Promotion as an important approach to meet the health needs of people of the world and the World Health Assembly reaffirmed the use of PHC approach globally. The South African government prior to 1994 had a fragmented system for different race groups. Most black communities were disadvantaged socio-economically especially those in rural areas owing to lack of access to health facilities for basic services for mother and child care.
Post 1994, the Government of National Unity restructured the health policy. The PHC approach was adopted in SA as a strategy to achieve “Health for All” by the year 2000. The DoH strategies targeted the mother and child health and free medical services were offered to pregnant women and children below six years old. The scourge of HIV and AIDS and chronic conditions such as diabetes mellitus and hypertension challenged the PHC service delivery sustainability because of lack of human and material resources (DoH 2011:7).

2.3 PRACTICE REVITALISATION OF THE ROLE OF THE NURSES

The concepts practice, revitalisation, role, and nurse were adequately defined in section 1.6 of the study. According to College of Nurses of Ontario (2014:5), the primary duty of nurses is to ensure the provision of safe, competent and ethical nursing to their patients. In SA, the scope of practice is the one that sets practice boundaries and the description of what services and competencies are expected from each nurse category as stipulated in the Nursing Act, Act No. 33 of 2005(see South African 2005). However, the need to strengthen the PHC service through capacity building affects the need to revitalise the clinic nurse’s role. This calls for possible review of the competencies of nurses.

Currently, SANC is reviewing competencies of different categories of nurses and their curriculum. Two predominant categories of the advanced nursing practice are currently identified by SANC as Clinical Nurse Specialists who work closely with medical practitioners. Advanced Nurse Practitioner defines a person who focuses on primary care, health assessment diagnosis and treatment. In SA, this category is closer to the role of clinic nurses and they are on the same level as paediatric nurses (Nursing Act, Act No. 33 of 2005). The role of the PNs in the clinic include mother and child services such as antenatal, perinatal and postnatal care and attend to the chronic conditions such as hypertension. These nurses examine parents and children, diagnose and prescribe treatment, give health education and do GDM. Enrolled Nurses mostly work under the delegation of the PN. They screen, weigh patients and immunize children, give supplements and dispense medication including going out to work with and supervise community workers. These nurses are not medical doctors or pharmacists but in the absence of doctors, pharmacists and dieticians, they do fill the gap. Therefore, the roles of clinic nurses are overlapping and they are shifted around to meet the demand for
care in the clinic. Therefore, the role of clinic nurses needs to be revitalised to improve quality of work-life and childcare.

Prior to 1994, according to the repealed Nursing Act, (Act No. 50 of 1978), the Clinical Nurse Specialist (R48 of 22 January 1982) was more advanced in knowledge and practice whereas Community Health Nurses had additional qualification in community nursing. Both categories of nurses worked mostly in the community clinics. The view of the International Council for Nurses (ICN) is that each country should credential nurse categories according to its own context, taking into account its health care system and available resources to enable the country to model its own level/s of specialisation. Each area of specialisation or professional practice had well outlined competencies. College of Nurses of Ontario (2014:4) defines a competency as the required knowledge, skill, capability, ability, and judgement to provide best practice and safe professional, ethical nursing practice. SANC (2014:4) also prescribes competencies for registered nurses and midwives.

2.3.1 Competencies of nurses

Competencies are defined by College of Nurses of Ontario (2014:2) as a combination of knowledge, skills, judgement, attitudes, ability, and proficient performance. The practice standard of nurses in SA is based on standards and ethical values of the SANC. This is a regulatory body under the auspices of the Nursing Act (Act No. 33 of 2005). This Act mandates SANC to develop and maintain the scope of practice of PN including competencies. The competencies of clinic nurses that are relevant to their practice and role regarding GDM of children are illustrated in Table 2.1 as evidence on what is expected from clinic nurses in practice.
Table 2.1  Competencies of clinic nurses

<table>
<thead>
<tr>
<th>DOMAIN 1: PROFESSIONAL, ETHICAL AND LEGAL PRACTICE</th>
<th>SPECIFIC COMPETENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUBDOMAIN/CORE COMPETENCY</strong></td>
<td><strong>SPECIFIC COMPETENCY</strong></td>
</tr>
<tr>
<td>1.1 Professional practice</td>
<td>1.1.1 Takes responsibility for own case load of (client) health care users and practice</td>
</tr>
<tr>
<td></td>
<td>1.1.2 Collaborates/consults with peers and other health professionals regarding patient assessment, diagnose and management</td>
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<td></td>
<td>1.1.3 Practises as an co-dependent and autonomous primary care nurse</td>
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<tr>
<td></td>
<td>1.1.4 Accepts personal and professional responsibility/ accountability for legal consequences of own practices</td>
</tr>
<tr>
<td></td>
<td>1.1.5 Liaises with local health services such as the hospital, and other clinics</td>
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<tr>
<td></td>
<td>1.1.6 Works within the macro environment of the PHC service delivery, National Health Care Systems, codes of conduct related to treating patients, including prescribing medicines</td>
</tr>
<tr>
<td>1.2 Ethical practice and Legal Practice</td>
<td>1.2.1 Approaches health care users presenting with health problems related to ethical dilemmas and stigma in an non-judgmental manner</td>
</tr>
<tr>
<td></td>
<td>1.2.2 Practices own profession according to Code of Ethics/conduct and standards related to primary clinical care</td>
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<tr>
<td></td>
<td>1.2.3 Identifies ethical dilemmas and make a critical and responsible ethical decision, taking into consideration illegal and ethical frameworks</td>
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</table>

<table>
<thead>
<tr>
<th>DOMAIN 2: CLINICAL PRACTICE</th>
<th>SPECIFIC COMPETENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>SUBDOMAIN/CORE COMPETENCY</strong></td>
<td><strong>SPECIFIC COMPETENCY</strong></td>
</tr>
<tr>
<td>2.1 Health promotion and prevention</td>
<td>2.1.1 Plans and implement life style adjustment/management according to the specific health needs of the client in consultation with the care.</td>
</tr>
<tr>
<td></td>
<td>2.1.2 Refers appropriately to other members of the health team</td>
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<tr>
<td></td>
<td>2.1.3 Identify health, psycho-socio-economic risk factors in the individual family/environment</td>
</tr>
<tr>
<td></td>
<td>2.1.4 Identifies problems, distinguishing between drug-related and other health problems and give health talks</td>
</tr>
<tr>
<td>2.2 Assessment (conduct health assessment/physic)</td>
<td>2.2.1 Conducts a comprehensive and holistic health assessment on clients of all age groups, with complex health problems (acute, chronic and emergencies)</td>
</tr>
</tbody>
</table>
## DOMAIN 2: CLINICAL PRACTICE

### SUBDOMAIN/CORE COMPETENCY

<table>
<thead>
<tr>
<th>SUBDOMAIN/CORE COMPETENCY</th>
<th>SPECIFIC COMPETENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>Examination of any person</td>
<td>2.2.2 Conducts a rapid appraisal and assessment of emergency conditions</td>
</tr>
<tr>
<td></td>
<td>2.2.3 Determines patient’s history, both nursing and medical</td>
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<td></td>
<td>2.2.4 Interprets history and identifies health problems and makes a nursing diagnosis</td>
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<tr>
<td></td>
<td>2.2.5 Conducts skilfully, a physical examination utilising the four basic assessment techniques (inspection, palpation, percussion and auscultation) using relevant equipment</td>
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<tr>
<td></td>
<td>2.2.6 Synthesizes and interprets history and physical examination findings to make an appropriate nursing diagnosis</td>
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<td></td>
<td>2.2.7 Performs and requests diagnostic investigations as justified by the patient’s health status/condition, protocol and authorization</td>
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<tr>
<td></td>
<td>2.2.8 Requests relevant and specific tests</td>
</tr>
<tr>
<td></td>
<td>2.2.9 Interprets investigation results to confirm the final diagnoses or with consultation</td>
</tr>
<tr>
<td>Diagnosis (diagnose illnesses, any defects, or deficiency)</td>
<td>2.3.1 Interprets history and physical examination findings to identify a health problem and makes nursing diagnosis/es/</td>
</tr>
<tr>
<td></td>
<td>2.3.2 Makes specific nursing diagnosis</td>
</tr>
<tr>
<td>Planning</td>
<td>2.4.1 Discusses with patients (and family), the nursing diagnosis, treatment and possible complications, to obtain participation and increase compliance</td>
</tr>
<tr>
<td></td>
<td>2.4.2 Compiles and implements a nursing care plan specific to this patient (drug and non-drug treatment)</td>
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<tr>
<td></td>
<td>2.4.3 Discusses patient responsibilities towards achieving expected short and long term treatment outcomes</td>
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<td></td>
<td>2.4.4 Provides appropriate pre-referral/emergency treatment to stabilise patient</td>
</tr>
<tr>
<td></td>
<td>2.4.5 Communicates clearly to the patient her/his specific individual discharge plan and follow-up plan (including urgent/immediate return) for the continuation of care</td>
</tr>
<tr>
<td>Implementation (provides direct care including prescribing medicines)</td>
<td>2.5.1 Prioritises and manages effectively own patient load</td>
</tr>
<tr>
<td></td>
<td>2.5.2 Prescribes relevant medication as per applicable legislation and protocols, taking into account prescriber’s responsibility and accountability (rational drug prescribing) within the scope of practice</td>
</tr>
<tr>
<td></td>
<td>2.5.3 Apply in-depth knowledge of Pharmacology when considering drug management of a specific patient within the scope of practice</td>
</tr>
</tbody>
</table>
## DOMAIN 2: CLINICAL PRACTICE

<table>
<thead>
<tr>
<th>SUBDOMAIN/CORE COMPETENCY</th>
<th>SPECIFIC COMPETENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.5.4</td>
<td>Selects the most appropriate drug, dose and formulation for an individual patient within the scope of practice</td>
</tr>
<tr>
<td>2.5.5</td>
<td>Administers drugs in accordance with procedural and regulatory measures</td>
</tr>
<tr>
<td>2.5.6</td>
<td>Prescribing according to competency level and authorization</td>
</tr>
<tr>
<td>2.5.7</td>
<td>Keeps and stores medication as per specific drug instructions</td>
</tr>
<tr>
<td>2.5.8</td>
<td>Controls and records the supply of pre-packed drugs according to the prescribed protocols and legal requirements</td>
</tr>
<tr>
<td>2.5.9</td>
<td>Maintains security and integrity of all records including prescription forms</td>
</tr>
<tr>
<td>2.5.10</td>
<td>Provides specific explanations to the client on relevance of medicine to their health problem</td>
</tr>
<tr>
<td>2.5.11</td>
<td>Provide clarity on medication action, including but not limited to correct dosages, desired action, interactions, contra-indications, adverse effects</td>
</tr>
<tr>
<td>2.5.12</td>
<td>Gives clear instructions to the patient about taking of their medication (such as when, how and why)</td>
</tr>
<tr>
<td>2.5.13</td>
<td>Seeks guidance from other health care professionals and Prescribers such as doctors</td>
</tr>
<tr>
<td>2.5.14</td>
<td>Adheres to all principles of prescribing that meets legal requirements (legibility, clarity, completeness)</td>
</tr>
<tr>
<td>2.5.15</td>
<td>Refers appropriately clients/patients with complicated health problems to the next level of health care</td>
</tr>
<tr>
<td>2.6.1</td>
<td>Evaluates progress and treatment response</td>
</tr>
<tr>
<td>2.6.2</td>
<td>Adjusts nursing care plan as required by patient’s condition</td>
</tr>
<tr>
<td>2.6.3</td>
<td>Checks patient’s understanding and commitment or compliance to treatment regime</td>
</tr>
<tr>
<td>2.6.4</td>
<td>Identifies and manage potential complications of the presenting condition, as well as side/adverse effects of the drugs</td>
</tr>
<tr>
<td>2.7.1</td>
<td>Obtain informed consent for procedures and treatment, and respect the patient’s and family choice</td>
</tr>
<tr>
<td>2.7.2</td>
<td>Applies effective therapeutic communication skills throughout consultation process (assessment, diagnosing, prescribing and referral)</td>
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</tbody>
</table>
## DOMAIN 3: PERSONAL AND QUALITY CARE

<table>
<thead>
<tr>
<th>SUBDOMAIN/CORE COMPETENCY</th>
<th>SPECIFIC COMPETENCY</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>3.1 Quality improvement</strong></td>
<td>3.1.1 Participates actively in the development of clinical protocols and guidelines related to area of practice</td>
</tr>
<tr>
<td></td>
<td>3.1.2 Participates in setting of standards for clinical practice for all clinic nurses based on scope of practice</td>
</tr>
<tr>
<td></td>
<td>3.1.3 Applies evidence-based practice to keep up-to-date and skilled with the consultation and management of patients</td>
</tr>
<tr>
<td></td>
<td>3.1.4 Engages in reflective clinical practice to improve care</td>
</tr>
<tr>
<td></td>
<td>3.1.5 Audits patient records</td>
</tr>
<tr>
<td></td>
<td>3.1.6 Engages in peer group mentoring and evaluation to improve quality</td>
</tr>
<tr>
<td></td>
<td>3.1.7 Documents, shares and reports practices, including prescribing errors and near misses</td>
</tr>
<tr>
<td></td>
<td>3.1.8 Searches and uses tools that improve prescribing practice</td>
</tr>
<tr>
<td></td>
<td>3.1.9 Establishes professional links with other practitioners and prescribers</td>
</tr>
<tr>
<td><strong>3.2 Continuing education</strong></td>
<td>3.2.1 Takes responsibility and complies with CPD requirements specific to PHC as required by a professional/regulatory body</td>
</tr>
<tr>
<td></td>
<td>3.2.2 Takes responsibility to update self on the latest legislation, policies, protocols, guidelines regarding the assessment, nursing diagnosis and management of acute, chronic and emergency conditions</td>
</tr>
<tr>
<td></td>
<td>3.2.3 Keeps updated and skilled with the latest/current nursing diagnostic technology and other related technology</td>
</tr>
<tr>
<td></td>
<td>3.2.4 Keeps updated and skilled with current/new clinical procedures</td>
</tr>
<tr>
<td></td>
<td>3.2.5 Takes responsibility and complies with CPD requirements specific to PHC as required by a professional/regulatory body</td>
</tr>
</tbody>
</table>

SANC determines and prescribes the requirements of competencies of the various categories of nurses and how this should be maintained. These competencies are discussed under five domains, namely, domain 1: professional, ethical and legal practice, 2: clinical practice, 3: personal and quality care, 4: management and leadership and 5: research. These competencies are to be context-specific and based on one’s professional ability. They are embedded in the scope of practice of each group. They encompass standards of professional nursing, practice roles and responsibilities of a nurse in any health setting and ethical care defined by their
educational, legislative and discipline authorities. Each nurse is held accountable for her own manner of professional practice and maintenance of competence. Nurses have a responsibility to practice their role in patient care based on their scope of practice, level of education, qualification, experience and the context within which they are working (Nursing Act No. 33 of 2005). These competencies are outlined on Table 2.2.

However, SANC currently in the process of developing new qualifications especially that of a staff nurse with revised admission requirements, scope of practice and competencies R2598 of the Nursing Act, Nursing Act no. 33 2005 (see South Africa 2005a).

2.4 GROWTH DEVELOPMENT MONITORING

Growth monitoring is the process of following the growth rate of a child in comparison to a standard by periodic, frequent APM values in order to assess growth adequacy and identify faltering early. Growth monitoring is not the infrequent or one-time APM values of a child to assess nutritional status without assessing growth velocity over time (Griffiths & Del Rosso 2007:5). However, it is frequent consistent APM values of a child in nutritional assessment and growth rate continually.

Follow-up of children is done at the well-baby clinics routinely to monitor growth and development for immunisations purposes as well using the RHC to record progress and identify problems such as malnutrition early. Growth charts have been routinely used by clinic nurses to record weight, height and head circumference. However, nurses are perceived as not questioning routine practices enough and as such rely on their experience and assessment of patients for decision-making (O’Leary & Mhaolrunaiqh, 2012:379).

Currently, the SA Government has adopted the UN’s SDGs concept born at Rio Conference in 2012 with an objective to produce goals to balance sustainable development and environmentally, socially and economically. The focus of SDGs in SA entails Goal 2 for food security and improved nutrition and Goal 3 on ensuring healthy lives and promoting well-being for all at all ages (UNDP-SA 2016). The implementation of the National Health Insurance plan (NHI) is in the pipeline with involvement of all stakeholders (DoH 2012:1).
Laurence, Grummer-Strawn, Reinold and Krebs (2010:1) reported the results of a survey on GDM charts done by the CDC in the USA in 2006. The analysis revealed a gap in the GDM charts for babies with below normal weight and height for age affecting their stature. Despite introduction of a more comprehensive tool for growth reference in the USA, the CDC recommends the use of the new WHO Growth Standards Charts globally (WHO 2010:3).

According to Secker and Corby (2004:22), collaboration among dieticians, paediatricians, family physicians, and community health nurses of Canada resulted in the revision of the growth monitoring charts. The rationale being to adapt the WHO charts for use in Canada, to use guidelines that would promote consistent growth monitoring practice among practitioners, to portray how children grow from birth till 5 years, for consistency with “best practice” and for world-wide application.

According to Kimane-Murage, Norris, Pettifor, Tollman, Klipstein-Grobusch, Gomez-Olive, Dunger and Kahn’s (2011:1) report, the government policymakers need to address nutritional status of all children, in particular those infected or affected by HIV/AIDS in order to achieve the MDGs. However, 26% of children below five years of age are at risk of poor cognitive development and malnutrition. Therefore, malnutrition is perceived as an exacerbating factor in child mortality that influences growth and development in children, regardless of their HIV status. Boschi-Pinto, Young and Black (2010:i3) reported the increase in child mortality. Unfortunately, the United Nations (UN) and the WHO’s endorsement of the MDG4 could not achieve reduction of child mortality by two thirds by 2015.

The mortality rate among children under five “under five ‘mortality’ refers to “the number of deaths in children under five years of age, divided by the number of live births in a given year expressed as a rate per 1000 live births” (Joubert, Ehrlich, Katzenellenbogen & Karim 2010:28; WHO Bulletin 2012:1).

According to Boschi-Pinto et al (2010:i3) and the WHO Bulletin (2008:8), estimation of 25% child mortality in South East African countries was attributed to diarrhoea and other unknown causes. Despite the initiatives by the WHO, UNICEF and developing countries such as SA to improve the mortality rate of the children under five years globally,
malnutrition was identified as a major contributory factor for child deaths even though it is preventable.

2.4.1 Growth monitoring promotion

Compared to GM, GMP is referred to as “a preventative activity comprised of GM linked with promotion usually counselling to increase the awareness about child growth; improve caring practices, increase demand for other services as needed and serve as the core activity in an integrated child health and nutrition programme, when appropriate. Growth monitoring as an intervention is designed to affect family-level decisions and individual child nutritional outcomes (Griffiths & Del Rosso 2007:5).

Growth monitoring promotion is not the APM values of a child to determine levels of malnutrition for a nutrition surveillance programme; or children for food supplementation, therapeutic feeding, or other services. Growth monitoring promotion does not apply to the programme that may have an educational activity but the results of the GM do inform the education and curriculum packages related to the concept. Growth monitoring promotion is not a comprehensive intervention or a programme that will necessarily lead to reductions in malnutrition or in child mortality on a public health scale but it links the required information gathered from GM with an appropriate action to be taken in reducing malnutrition (Griffith & Del Rosso 2007:5). The GM and GMP elements are outlined in Figure 2.1.
Figure 2.1 Growth monitoring and promotion process
(Adapted from Griffiths & Del Rosso 2007:6).

The information on Figure 2.1 outlines an approach that clinic nurses can use or engage with to monitor growth, identify growth faltering early for prompt intervention. Both clinic nurses and family members can practice these actions. The monitoring through GDM can be done monthly focusing on the growth and nutritional status of a child. From the WHO standards, infants are measured 21 times between birth and 24 months whereas in growth reference children are sampled once and measured at three months intervals (Secker & Corby 2004:22). Monitoring of intervals are suggested at one to two weeks of birth, at two, four, six, nine, 12, 18 and 24 months, once per year for children over two years and for adolescents” (Dieticians of Canada and Canadian Paediatric Society 2010:77).
When health practitioners of the child take appropriate actions, it will be well tailored to the needs of the child. If this is achieved it will translate into improving the nutritional state of the child. However, if the caring practices of both the clinic nurse and the family including the programme actions are inadequate to address the need of children health outcomes from GMP will not be achieved (Griffiths & Del Rosso 2007:6).

2.4.2 Main objectives of growth monitoring and promotion of optimal growth

Manganasaryan et al (2011:44) recommend the need for clarification of objectives, definitions, expected outcomes, resources required to understand its role in community-based nutrition programme. The main objectives of GM and GMP are to provide a tool for nutrition and health assessment of individual children. It also includes an initiative for effective action in response to irregular patterns of growth. Health practitioners are to teach parents how nutrition, physical activity, genetics, and illness can affect growth. In doing so, health practitioners motivate individual creativity and better child-care practices in order to provide regular contact with PHC services (Dieticians of Canada & Canadian Paediatric Society 2010:77).

2.4.3 Activities linked to growth monitoring and promotion

Activities for GMP put emphasis on accurate measurement of weight, length or height and head circumference, precise plotting measurements on the suitable, authorised growth chart and correctly interpreting the child’s pattern of growth. In addition, discussion of the child’s growth pattern with the parent(s)/caregiver and supportive subsequent action when required is imperative (Dieticians of Canada & Canadian Paediatric Society 2010:79).

UNICEF (2005) reported differing opinions and the impact of GM and GMP outcomes on the global use of growth chart globally. These GM actions are related to APM values of children.

2.4.4 Growth Development monitoring in other countries

According to Sachs and Dykes’ (2006:1), Cochrane global review of evidence, findings revealed lack of investigation on either benefits or harms of GM. In the United Kingdom
(UK), fragmented GM practises were reported, with various professionals using different charts from WHO’s international growth charts. Moreover, misinterpretation of breastfed babies growth was identified and advice given in line with that. The review report revealed fragmented practice with different professionals using various charts. The use of the WHO growth charts standard was envisaged to ensure infant and youth child health and nutritional needs are met (Sachs & Dykes 2006:26).

According to Brownlee’s (1990:iii) sixth monograph, synthesised literature and recommendations were made regarding growth promotion and behavioural issues in child survival programmes. The area of focus included GM and GMP, growth monitoring, oral rehydration therapy, breastfeeding, and immunisation (GOBI). The review used biomedical and qualitative research in-depth methods to look at how to adopt technology, delivery systems and health promotion approaches to different countries and cultures for research support in child survival (Washington, USAID projects with the WHO and UNICEF).

Hendrata and Rhodes (1987:9) from Kenya, cited in Brownlee (1990:2) that properly practiced GM and promotion should be viewed as a “basket” of community activities and a framework/operational strategy for different PHC and educational inputs. The unique intervention provides continuity of care and contact with health care workers over two to three years. Even though GMP is universally recognised as an effective means for early detection of growth problems, providing preventative and curative opportunities, actions needed in child survival is perceived as difficult to implement (Brownlee 1990:2). Even though the review was done in 1990, some of the studies on GM reflect constraints and low support for promotion of child growth and development by policy makers in the bureaucratic system (Brownlee 1990:68).

2.5 ANTHROPOMETRIC MEASUREMENTS (APM) FOR CHILDREN

Anthropometric measurements involve the use of growth standards with reference to assessment of growth, nutritional status and well-being of children. Growth standards reflect optimal growth level that has the potential to be achieved by all children. The WHO standards and the use of Z-scores as explicated by Wang and Chen (2012:31) are outlined on Table 2.2.
Table 2.2    WHO growth standards and use of Z-scores

<table>
<thead>
<tr>
<th>PARAMETER</th>
<th>INDICATOR</th>
<th>OUTCOMES</th>
</tr>
</thead>
<tbody>
<tr>
<td>Infants and children &lt;10 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stunting</td>
<td>Height-for-age (H/A)-2 Z-score or &lt;3rd percentile</td>
<td>Chronic malnutrition</td>
</tr>
<tr>
<td>Wasting/thinness</td>
<td>Weight-for-height -2 Z-score or &lt;3rd percentile</td>
<td>acute malnutrition or current</td>
</tr>
<tr>
<td>Overweight</td>
<td>Weight-for-height &lt;2 Z-score</td>
<td>Overweight</td>
</tr>
<tr>
<td>Adolescents &gt;10 years</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stunting</td>
<td>H/A &lt; -2 Z-score or &lt;3rd percentile</td>
<td>Chronic malnutrition</td>
</tr>
<tr>
<td>Thinness</td>
<td>BMI for-age &lt; 5th percentile</td>
<td>Underweight</td>
</tr>
<tr>
<td>At risk of Overweight</td>
<td>BMI for-age &gt;=85th percentile</td>
<td>Overweight</td>
</tr>
<tr>
<td>Obese</td>
<td>BMI for-age &gt;=85th percentile and triceps sub-scapular, skinfold thickness-for-age &gt;= 90th Percentile</td>
<td>Obesity</td>
</tr>
</tbody>
</table>

(Adapted from Wang & Chen 2012:31)

2.5.1 The rationale for using percentile and Z-scores in APM

Anthropometric measurements help to assess and evaluate children’s growth and nutritional status which include weight, height, length, and head circumference for age based on different national surveys.

Z-scores are calculated based on the reference of the population means and standard deviation (SD). They reflect standardised quantities comparable across ages, sexes and APM values. They can be analysed as a continuous variable in studies. Z-scores are used to assess under nutrition, for example, stunting, wasting, underweight, and overweight such as obesity. They quantify extreme growth status at the end of the distribution. However, they are hard to use in the clinical practice (Wang & Chen 2012:29).

The WHO standards demonstrated similar growth among varied cultures and ethnic background of six developed and developing nations, whereas the CDC in the USA reference focused on a single country’s growth pattern. The USA recommended the use of the WHO growth standards globally for GDM of children.
2.6 CONCLUSION

This chapter highlighted the literature reviewed on important aspects such as health systems care, PHC and related models, revitalisation of the practice role of the nurse and related competencies and the global perspective on GDM. Chapter 3 will describe in detail the research methodology used in this study.
CHAPTER 3

RESEARCH DESIGN AND METHOD

3.1 INTRODUCTION

This chapter describes the research design and method adopted in this study. According to Joubert et al (2010:77), a study design refers to the structured approach followed by researchers to answer a particular research question or objective. The decisions that were made regarding the choice of the design and method included considerations of the study context, research problem and the objectives. According to Wentzel (2008) and Donabedian (1988) as cited in Nicholson (2008:45), the PHC model was alluded to for conceptual clarity. The choice of the relevant research method was shaped by the research question that was answered by the target population. The research method used included the setting, population, sample and sampling technique, data collection, data analysis and presentation, measures to ensure trustworthiness, and ethical considerations.

The objectives of this study were to

- explore and describe the clinic nurses’ practice role regarding growth and development monitoring of children in the Primary Health Care settings in Tshwane, Gauteng Province
- examine how clinic nurses in their practice role interpret the anthropometry measurement values for early detection of malnutrition among children
- explore and describe challenges encountered by clinic nurses’ practice role regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province
- develop guidelines on how the practice role of clinic nurses regarding GDM of children can be revitalised in Tshwane, Gauteng Province.
3.2 STEP 2 OF THE STUDY

Phase 1 of the study was conducted in three steps of which in this chapter was step two. The second step involved constructing the research methodology, which focused on a qualitative, non-experimental, explorative, descriptive, and contextual research design. During this phase, the researcher gained the privilege of entering the PHC clinics and the hospital developing rapport with the facility managers as gatekeepers. The second step involved design and planning of the study. During this stage, the researcher engaged in vigorous planning of some of the research processes such as theoretical foundation of the study, meta-theoretical assumptions, research setting, research design and method, ensuring trustworthiness and ethical considerations.

3.3 RESEARCH SETTING

Polit and Beck (2012:392) define research setting as the overall location or site where the study is undertaken. It refers to a specific place where data are collected such as in a workplace, at the people’s homes, a natural or real-life environment which cannot be manipulated by the researcher (Brink et al 2014:59).

The study was conducted at an academic referral hospital, and three clinics offering PHC services. The hospital is located in a township approximately 37 kilometres in the North of Tshwane Metropolitan Municipality in Gauteng Province, South Africa.

Tshwane Municipality has a population of 2.9 million people and 128 PHC clinics. The township where the clinics are located has a population of 90 945 people. Children from 0-5 year olds were 273 868 and 6-9 year olds were 211 000. The clinic nurses at these PHC facilities cater for adults and children’s health needs including GDM of children (Ganief & Thorpe 2013:2).

The three clinics are located in the Northern part of Tshwane in the township in ward 31 from units 1, 4 and 6. To get a better view of the clinics, the reader can access the City of Tshwane Maps wards 30 and 31 online.
The hospital has a bed capacity of 1753 beds, 39 wards with several outpatient departments. There is one paediatric outpatient clinic which caters for premature babies and all children with various medical conditions aged 12 years and younger.

The clinics with PHC services were chosen because it was convenient for the participants as they were afforded the comfort and convenience of answering the interview questions in their natural work setting where they practiced. Table 3.1 depicts the staff establishment of the context from which participants were recruited.

### Table 3.1 The number of clinic nurses

<table>
<thead>
<tr>
<th>Setting</th>
<th>PNs</th>
<th>ENs</th>
<th>EANs</th>
<th>Total number of nurses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clinic 1</td>
<td>13</td>
<td>01</td>
<td>1</td>
<td>18</td>
</tr>
<tr>
<td>Clinic 4</td>
<td>32</td>
<td>9</td>
<td>1</td>
<td>42</td>
</tr>
<tr>
<td>Clinic 6</td>
<td>9</td>
<td>6</td>
<td>0</td>
<td>15</td>
</tr>
<tr>
<td>Hospital OPD</td>
<td>6</td>
<td>6</td>
<td>2</td>
<td>14</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>60</td>
<td>22</td>
<td>4</td>
<td>89</td>
</tr>
</tbody>
</table>

Although the number of PNs and ENs seemed high, only five PNs and seven ENs volunteered to participate in the study and were available on the day of data collection. However, no EANs participated in the study as they were not available. Initially, focus groups were planned as part of data collection. Nevertheless, owing to shortage of staff and overload of work, it could not be possible.

### Table 3.2 Number of children attended to at each setting per month

<table>
<thead>
<tr>
<th>Month</th>
<th>Clinic 1</th>
<th>Clinic 4</th>
<th>Clinic 6</th>
<th>Hospital clinic</th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>845</td>
<td>1046</td>
<td>518</td>
<td>1779</td>
</tr>
<tr>
<td>February</td>
<td>775</td>
<td>1188</td>
<td>401</td>
<td>1775</td>
</tr>
<tr>
<td>March</td>
<td>789</td>
<td>1378</td>
<td>464</td>
<td>1506</td>
</tr>
<tr>
<td>April</td>
<td>779</td>
<td>1331</td>
<td>593</td>
<td>1975</td>
</tr>
<tr>
<td>May</td>
<td>639</td>
<td>1211</td>
<td>607</td>
<td>1984</td>
</tr>
<tr>
<td>June</td>
<td>815</td>
<td>976</td>
<td>490</td>
<td>1678</td>
</tr>
<tr>
<td>July</td>
<td>824</td>
<td>1062</td>
<td>653</td>
<td>1998</td>
</tr>
<tr>
<td>August</td>
<td>687</td>
<td>957</td>
<td>223</td>
<td>1682</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>6153</td>
<td>9149</td>
<td>3949</td>
<td>14377</td>
</tr>
</tbody>
</table>
The numbers of children attended to in the different settings were disproportional starting from January until August 2015. The hospital clinic had the highest number followed by clinic 4, 1, and clinic 6 was the lowest as plotted on the above table. Clinic 4 as a community health clinic (CHC) that opens 24 hours was second highest in statistics of attendance because it had the biggest infrastructure, activities and number of services offered.

3.4 RESEARCH DESIGN

Research design is defined as an overall plan for conducting research. It is an integrated statement and a blueprint justifying the choice of technical decisions involved in planning and implementing a research project in a way that relevantly addresses research questions and objectives (De Vos et al 2013:112). According to Polit and Beck (2012:741), a research design is “the overall plan for addressing a research question, including specification to enhance the study’s integrity”. Furthermore, Babbie and Mouton (2012:647) who are social scientists, view a research design as a structural frame used to address the research problem which can also be textual, or relate to primary or secondary data analysis studies.

The research design for this study was a qualitative, exploratory, descriptive, and contextual in nature and was used as it was relevant to investigate the research problem and to address the research objectives.

- Qualitative paradigm

Polit and Beck (2012:387) define a paradigm as a way of looking at natural phenomena that encompasses the philosophical assumptions to guide researchers in their inquiry. On the contrary, Babbie and Mouton (2012:645) define a paradigm as a model or framework for observation and understanding that shapes what is seen and how people understand it. Furthermore, Kuhn (1970) in Brink et al (2014:24) refer to a paradigm as an accepted tradition of beliefs and values that guide research in a specific discipline as a method of structuring reality.

In this study, a qualitative research was conducted to gain insight into the clinic nurses’ practice regarding GDM of children. Therefore, this design enabled the researcher to
gain insight into the study phenomena by exploring its inherent complexities and richness.

**Qualitative research**

Qualitative research is a method of naturalistic investigation which is not as obtrusive as quantitative methods can be. It tends to study people in their natural settings and collect naturally happening data. Bowling (2009:380) cites (Carter & Henderson 2005) as stating that qualitative researchers try to appreciate the participant’s views without making any judgements during data collection (Bowling, 2009:380). Qualitative research is an academic method to describe life experiences from the perspective of the persons involved. Grove et al (2013:57) cite ZuZelo (2012) as saying that qualitative research is a way to give meaning to subjective human experiences as well as acquire understanding of phenomena to guide nursing practice.

Qualitative research entails research methodologies that aim to explore, describe and explain a person’s lived experiences, their behaviours, interpersonal interactions and social contexts without the use of statistical procedures or being able to put numbers to the research, rather through written data or spoken words. It is an open-ended process, and it develops as the research continues. The researcher in this study decided on the qualitative method to conduct qualitative individual interviews as was interested in how the practice role of clinic nurses can be revitalised.

The advantage of this approach was that it enabled the researcher to use an inductive reasoning in the process of collecting and analysing data with resultant guidelines that were formulated (Alpaslan 2014:2). In addition, the major advantage of this was that it provided a way to investigate subjective practice experiences in a work environment and it showed how this study could be useful to produce guidelines for the revitalisation of the practice role of clinic nurses (Polit & Beck 2012:487). However, the major disadvantage was that the sample size was small therefore, the findings of the study cannot be generalised.
• **Exploratory design**

According to Polit and Beck (2012:12), exploratory research refers to exploration of the nature of the phenomenon of interest to the researcher and the manner in which it manifests. The researcher entered a complex situation interacting with participants to seek a better understanding from their viewpoint exploring what their practice and role was regarding GDM and APM values of children as well as related challenges (De Vos et al 2013:64, 95). The explorative nature of this study led to new insights and comprehension of the phenomenon under investigation.

• **Descriptive design**

Descriptive research design is defined as having its main objective to accurately portray people’s circumstances within which certain phenomena occur (Polit & Beck 2012:379). Therefore, the purpose of a descriptive research in study was to focus on observing, describing and documenting through field notes and study analysis aspects of how the phenomena was perceived (Polit & Beck 2012:515). More specifically, the design entailed examination of the phenomena and their deeper meanings that led to thicker description of the role of clinic nurses in the natural settings (Brink et al 2014:112).

• **Contextual design**

A research context refers to a “location for conducting research for example: a natural, partially controlled or highly controlled setting” (Burns & Grove 2009:780). According to Yin (2011:8), contextual research describes the phenomena under study for immediate intrinsic significance because its focus is on the environment where people’s experiences happened. Contextual research is said to reveal the impact that the situation and environmental condition have on human events. This study was conducted in the clinics and a hospital within the PHC.

**3.5 RESEARCH METHOD**

Research method refers to the steps, techniques, procedures, and tools used to structure a study and to gather and analyse information systematically (Grove et al 2013:707). According to Creswell (2009:233), research methods involve the form of
data collection, analysis, and interpretation that researchers propose for both qualitative and quantitative studies. The research methods that were used in this study were population sample and sampling, sampling technique, data collection, data analysis, presentation and interpretation, ensuring trustworthiness as well as ethical considerations.

3.5.1 Population

Population is defined by Grove et al (2013:703) as all persons, objects, events or substances that meet the criteria of a sample targeted for inclusion in the study (Polit & Beck 2012:744).

The universal population of this study was all clinic nurses in the public health care sector rendering PHC services in South Africa. The target population was the entire population of PNs, ENs and ENAs currently working in the PHC clinic setting of the Tshwane Health District. The accessible population comprised clinic nurses who were recruited based on their experience in GDM of children and eligible, willing and available to participate in the study (Grove et al 2013:703).

The inclusion sample criteria for this study were as follows:

- Both males and females
- Twenty (20) years of age and above to recruit matured informants
- Different categories of nurses registered with the SANC under the Nursing Act No. 33 of 2005 (South Africa 2005:34)
- With two years and more experience working in the clinic to generate rich information to answer the research question
- Willing participants on voluntary basis.

The inclusion of participants with these characteristics was anticipated to enhance provision of the implicit rich and thick information to address the research problem.
• **Exclusion sample criteria**

Grove et al (2013:694) refer to the exclusion criteria in terms of participants who were excluded by the researcher because they could not meet the inclusion criteria. Similarly, Polit and Beck (2012:274) refer to exclusion criteria as participants who did not possess the characteristics essential for inclusion in the study. Therefore, the exclusion criteria for this study was all clinic nurses with less than two years’ experience in the clinic, and younger than 20 years of age.

3.5.2 **Sample and sampling method**

According to Polit and Beck (2012:742), a sample is “a subset of a population comprising those selected to participate in a study”. De Vos et al (2013:22) view a sample as comprising elements or subset of the universal population considered for inclusion in a study, or measurements drawn from the population of interest. According to Brink et al (2014:132), sampling refers to the process followed to select a sample from the accessible population to enable the researcher to obtain information regarding the phenomenon. A non-probability purposive sampling technique was used to select participants. Participants who were assumed to have an in-depth, thick or rich understanding of the study phenomena were selected on voluntary basis. Non-probability sampling is less likely than probability sampling to produce representative samples (Polit & Beck 2012:735).

• **Purposive sampling**

According to Burns and Grove (2009:355), purposive sampling is defined as judgmental or selective sampling where the researcher consciously selects certain participants to be included in a study because they possessed rich information and had experience regarding the GDM of children in the Tshwane PHC. In this study, information-rich participants were selected purposefully based on personal judgement of the researcher to address the purpose of the study (Polit & Beck 2012:739).
**Ethical issues related to sampling**

Fairness and justice was observed in sampling from the universal, targeted and accessible population of clinic nurses. Sampling of participants was not based on their compromised position, social standing or vulnerability and their rights were not exploited (Polit & Beck 2012:155). Accordingly, selecting participants was purely for reasons directly related to the research problem and the study purpose and on voluntary basis to participate, not because of easy manipulation (De Vos et al 2013:392). The Tshwane Health District Research Committee and clinic management had granted permission to allow the researcher entry to the targeted PHC clinic setting as well as the hospital. Therefore, the researcher met with the prospective willing participants who met the inclusion criteria for sampling. Fair treatment principle was observed by not prejudging people who were declining to participate in the study as well as those who withdrew from the study after the initial agreement to participate. Therefore, the intention was that participants were sampled from the targeted sites to purposefully inform the understanding of the research problem to protect individuals from potential harm by securing their well-being; physically, psychologically, emotionally economically, socially or legally (Brink et al 2014:35).

**Sample size**

Initially, the plan was to recruit participants for both face-to-face and focus group interviews. However, owing to unforeseen circumstances of shortage of staff and work overload, only participants earmarked for face-to-face interviews were available. The sample size as a qualitative study could not be pre-determined but data were collected from the sample to the point at which no new information was obtained and redundancy was achieved at the 12th individual interview (Polit & Beck 2012:286). Polit and Beck (2012:527) cite Morse (1991) as saying that there are two criteria such as adequacy and appropriateness which were used when trying to evaluate the sample that was used for this study.

*Adequacy* was achieved when there was enough data and the type of data was rich enough. When data saturation was reached and there were no new themes, categories or concepts being raised, then the sample was deemed adequate.
Appropriateness refers to the methods that the researcher uses to select the sample. In this study, participants that were information-rich and had experience of the phenomenon under study were purposefully recruited without difficulty.

3.5.3 Data collection

Burns and Grove (2009:695) define data collection as “precise, systematic gathering of information relevant to the research purpose, specific objectives, questions, or hypotheses of a study”. Data refer to the information generated and collected by the researcher during the course of the study using different instruments (Polit & Beck 2012:725). Bryman (2012:14) adds that data are gathered from the sample so that the research questions can be answered.

3.5.3.1 Data collection method

Individual face-to-face interviews were used using an interview guide which comprised section A of the questionnaire comprising items for biographic data and section B having a central question to collect data. Interviewing refers to a method of data collection in which the researcher asks questions to participants and obtain their responses in a face-to-face encounter or telephonically (Polit & Beck 2012:73). During the interviews, participants provide needed research information in a verbal communication whereby the researcher is afforded flexibility to explore the greater depth of meaning using probing compared to other techniques such as structured closed-ended questions (Burns & Grove 2009:403). In this study, face-to-face individual interviews were conducted to collect data from the participants using an interview guide. During the in-depth interviews, a central theoretical or grand tour question was asked as follows: “Tell me, how can your practice role as a clinic nurse be revitalised regarding growth development monitoring of children where you are working”?

Probing was done to facilitate and encourage the participants to tell more to obtain clarity and meaning about the study construct, following their response in order to achieve the study objectives.
3.5.3.2 Data collection tools

An interview guide comprised of two sections (Annexure E). Section A was for the demographic data for the participants and section B had the unstructured grand tour question. The grand tour question was constructed based on literature review about the research problem. Confidentiality was obtained in that no personal information of participants was written on the interview guides. Although the researcher knew some participants, only pseudonyms and quotes were used.

3.5.3.2 Pre-testing the interview guide

According to Polit and Beck (2012:738), a pre-test is the trial administration of a newly developed data collection instrument. Pre-testing the interview instrument was done in this study with the purpose to establish whether relevant data could be obtained from participants, to refine the interview guide and also to determine the duration of the interview. Where problems could have surfaced this would have provided an idea of handling unexpected events, Identifying time requirements, namely how long it takes to answer the qualitative question till data saturation (Polit & Beck 2012:296).

The data collection tool was pre-tested on one PN and one EN who were not part of the main study but had all the characteristics for inclusion (Annexure D). The face-to-face individual interviews were conducted in a quiet office designated for that purpose. An arrangement was made with participants in terms of venue and times of interviews. The grand tour question followed with probing questions was used to conduct the interviews. The interviews were captured using a digital voice recorder. These were transcribed verbatim, typed and analysed by the researcher. The researcher was able to practice and refine her interview and observation skills using the guide and gave full attention to participants. During the pre-test interviews, the researcher listened without interruption, nodded head to encourage more talking from participants, probed and observed non-verbal body language and made notes (Burns & Grove 2009:713; De Vos et al 2013:394; Polit & Beck 2012:737). The researcher further explored the challenges that impacted on the practice role of clinic nurses concerning GDM of children in the PHC setting of Tshwane, Gauteng Province.
3.5.3.4 Data collecting process

- Negotiations were done about what was needed to facilitate the process of data collection process and rapport established with the clinic managers and the prospective participants.
- The venue was negotiated for in terms of private room/consulting room and furniture such as table and chairs for the researcher and the participants one at a time.
- A ‘do not disturb notice’ was placed on the door to avoid distractions or interruptions.
- The door was closed to ensure privacy, comfort and confidentiality.
- The researcher brought the following to the interview context: copy of the ethical clearance, permission letter to conduct the interviews, consent form for participants, participant information leaflet, and adequate interview guide documents for example, the interview guide with section a demographic tool for demographic data and section B grand tour question, digital voice recorder with recording functionality tested. Extra batteries were brought along. A journal and stationery were used to write down field notes from the observations made by the researcher during the interviews of the participants.
- The clinic nurses were already informed about dates of data collection and attended the interview sessions in turns over a period of 10 days.
- A digital voice recorder was tested and prepared for recording, spare batteries were kept ready to avoid loss of information and interruption, and it was kept in a convenient place during the interview to avoid distraction and ensure smooth recording of the interview.
- Participants were requested to switch off their cell phones to avoid interruptions during interviews.

Participants were given an explanation of what is expected of them. The general and the specific purpose of the study and possible benefits such as counselling sessions available where necessary were explained using also the participant information leaflet (Annexure F).
The letter of permission to conduct the study was read and shown to participants and each one was requested to sign an informed consent form.

Seating arrangements were such that the researcher and participant faced one another with a table between them. A space was created on the table to place the digital voice recorder conveniently including the interview guide, the journal and stationery to avoid distractions during the interviews.

Demographic questions were asked first in a questionnaire and then the unstructured grand tour interview question was asked using an interview guide.

Although interviews were conducted over 10 days, the visits to the clinics extended over a longer period to collect statistics.

Collected data was properly labelled with dates, places and no personal information was written on the labels for confidentiality purposes.

During the introductory stage of the interview sessions, the researcher greeted, introduced herself and thanked participants in order to create rapport. She then asked for permission for their right to voluntary participate without coercion. The researcher thanked willing participants and showed them ethical clearance from Unisa and permission to conduct the study from the Tshwane DoH for authenticity and legitimacy of the study. Ethical issues were explained and a written consent form obtained as stated in the informed consent (Annexure D).

Data collection challenges

Several challenges were encountered during data collection such as noise, knocking at the door and opening of the door once or twice regardless of the fact that the “Do not disturb” notice was initially put at the door. The first clinic had small pre-fab offices which were close to each other such that when the phone rang or people in the room next door raised voices, they were audible. One PN and three ENs participated in the interviews. However, the fourth EN was withdrawn to go and supervise the community-based workers during the follow-up of patients, mothers and children.

In the second clinic, five nurses were recruited for participation initially, but three declined to participate and their right to self-determination and withdrawal was
respected. Nevertheless, two nurses agreed to participate. However, one of them did not meet the inclusion criteria and only one PN participated in the interview. From the third clinic, out of five nurses available, only two PNs met the inclusion criteria and were willing to participate in the interviews after attending to children who came to the clinic on that day. Two appointments with nurses from the hospital were postponed and rescheduled owing to unforeseen circumstances to accommodate the participants’ needs. One PN and four ENs from the hospital clinic setting participated in the interviews.

3.5.3.5 In-depth individual interviews

According to Brink et al (2014:213), an interview is defined as a method of data collection in which the interviewer obtains responses from a participant in a face-to-face meeting or telephonically. In addition, Grove et al (2013:698) describe an interview as structured or unstructured verbal communication between the researcher and the participants during which information is gathered for a study. In this study, face-to-face interviews were collected from participants. The grand tour question that was asked by the researcher to the participant was: “Tell me: in relation to the research topic about practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the PHC setting of Tshwane. Participants who partook in the study were five PNs and seven ENs. The question was consistently asked to each participant followed by probing questions.

Rapport was established with each participant by listening attentively showing interest and respect with understanding of what was said (De Vos et al 2011:351). The researcher did occasional nodding of the head repeatedly with minimal verbal response in order to encourage the participants to continue speaking without interrupting them. Comments like “mm-mm” were made as communication cues to show attentiveness (De Vos et al 2013:345). Probes were used to deepen the response to a question and to increase the richness of the information obtained (De Vos et al 2013:345). The researcher enhanced meaning by paraphrasing the participants’ words in another form for the same meaning in a verbal response. She further used this form of communication with the participants to get more clarity on what was said for example “I heard you say ... do you mean”? (De Vos 2013:345). Probing questions (section 1.8) were asked for more clarity on the answers.
Each session lasted for 40 to 45 minutes with an average of 40 minutes each.

Field notes, according to Grey et al (2013:695), are made during and immediately following the observations. In addition, field notes are broad unstructured observational records that are more interpretive and analytic and not simple listing of occurrences. Instead, they represent the researcher’ observations and actual record of information to synthesise and understand data (Polit & Beck 2012:548). In this study, the researcher did not have a moderator but wrote own field notes immediately after each session. This note taking assisted in writing a memo for data analysis on the Atlas.ti computer software version 7.0 for analysis. In addition, the field notes were used to write out the researchers’ feelings, opinions, reflections, and the conclusions about the data collected.

3.5.3.6 Data management and analysis

Data management based on the suggestion of Grove et al (2013:531) was prepared early to avoid confusion because of the large quantity of data. Data from transcripts were then organised by attaching pseudonyms, alphabets and numbers in an orderly manner such as first participant as (P1). From transcripts, data were loaded on the computer. The captured data from the digital voice recorder was transcribed verbatim and typed by the researcher. Furthermore, each transcript was given a specific alphabetical code. The typed transcripts were locked in a safe place known and accessed by the researcher only. Transcripts were read and re-read and the information was loaded into the computer to prepare for preliminary data analysis.

Data analysis was commenced manually using the eight steps of Tech’s qualitative data analysis method (Creswell 2009:188). Later, data were imported into the Atlas.ti computer software version 7.0 for its management, organisation into a memo, codes and project files for analysis. Data were stored in three flash disks and will be stored for the next five years.

3.6 ENSURING TRUSTWORTHINESS

Trustworthiness of a research study is important to evaluate the worth and truthfulness of the data. It involves establishing and employing Lincoln and Guba’s (1985:305)
criteria of: credibility, dependability, confirmability and transferability. According to Babbie and Mouton (2012:276), emerging criteria for demonstrating robustness in qualitative inquiry, such as authenticity, trustworthiness and goodness need to be considered. The basis for good qualitative research is found in its trustworthiness or the neutrality of its findings.

Ensuring trustworthiness in qualitative research is what rigour is in quantitative research with particular reference to ensuring validity and reliability. In qualitative research ensuring trustworthiness is a term expressing excellence involves discipline, attention to detail and precision with each step carefully examined. This is aimed at reducing error, weaknesses and subjectivity thereby ensuring that the outcome of the study reflects reality as experienced by participants (Botma, Greeff, Mulaudzi & Wright 2010:80).

Various models have been developed by different authors to satisfy the requirements for rigour from a qualitative perspective (Tuckett 2005:31).

Therefore, in this study, the criterion of credibility, dependability, confirmability, transferability, and authenticity were ensured.

- **Credibility**

Credibility refers to the confidence in the truth of the data and how it is interpreted (Brink et al 2014:172). In this study, the investigation was done such that the findings showed credibility in a believable way, with the confidence that what was reality from the participants’ information was reflected truthfully.

Confidence in the truth of the report was established using different techniques such as prolonged engagement, persistent observation in the field, triangulation of data collecting methods analysis and adequacy of data (Brink et al 2014:172; De Vos et al 2013:419).

- **Prolonged engagements with data**

The researcher prolonged engagement with participants as she spent adequate time with them during the interviews and gained in-depth understanding about the current
practice role of clinic nurses regarding GDM and APM values and related challenges. During this relationship, rapport and trust were established which was necessary in gathering participants’ rich data and gaining their cooperation (Brink et al 2014:127).

**Persistent observation**

During interviews in data collection, the researcher persistently observed cues, keys body language and gestures of participants during the interviews. Moreover, she pursued them by probing into the observations to interpret the true meaning thereof from the participants and their significance in relation to the phenomenon and analysing them properly not according to her own thinking (Brink et al 2014:172).

**Peer review**

Throughout the study, all research work done was referred to the study promoters who are experts in qualitative studies and theoretical knowledge. An independent coder participated in data analysis with valuable input. The developed guidelines were sent to five external experts in the services for validation.

**Member checks**

According to Brink et al (2014:172), it is an intentional initiative by researchers to correct errors and to provide additional information. In this study member checks was ensured by taking what emerged from the findings and the interpretation thereof to participants for discussion and confirmation. Supervision by promoters was central to member checking for guidance and corrections made.

- **Dependability**

Polit and Beck (2012:725) define dependability as a criterion for evaluating the integrity of qualitative studies, and how stable will the data be over time and over conditions; similar to reliability in quantitative research. It also relates to questions and the logic behind the research process regarding its documentation and auditing (De Vos et al 2013:420). Dependability refers to the provision of evidence such that if the research
steps were to be repeated with similar participants in a similar context, it will yield similar findings, contextual meaning and stability of data over time (Brink et al 2014:172).

An audit trail is defined as a “systematically maintained documentation process of the researcher’s continuous critical analysis of all decisions and actions taken during the entire research process”. It is developed to determine data dependability for an independent auditor to confirm and draw conclusions about data and the findings later on when needed (Polit & Beck 2008:539).

In this study, an audit trail that was developed by keeping the interview schedule and the verbatim typed transcripts, the record of the digital voice recorder, the field notes (journal for reflexivity) as well as all the findings. The study reports were kept in a safe place under lock and key where no unauthorised person can access them (Babbie & Mouton 2012:278).

- **Confirmability**

Confirmability confirms the degree to which the research findings reflect the outcome of the enquiry and not the biases, opinions or experiences of the researcher. Critical self-reflection need was made by the researcher regarding own biases, preferences and preconceptions to avoid influencing the opinions and beliefs of what participants know about their practice role in GDM (Polit & Beck 2012:375).

According to Lincoln and Guba (1999) cited in De Vos et al (2013:421), there is a need to confirm whether constructs of objectivity are based on the data and not evaluated on inherent characteristics of the researcher.

- In this study, *confirmability audit* ensured that the research findings were based on the research process and the data collected from the voluntary participants and were not constructs of the researcher’s assumptions, views and preconceived ideas or perceptions about the study phenomena.
- Grove et al (2013:707) define *reflexivity* as a self-awareness and critical examination of the interaction between self and data during collection and analysis of qualitative data which may lead the researcher to explore personal feelings and experiences that influence the study. Therefore, in this study,
reflexivity was relevant for the researcher to examine personal feelings and experiences that could have influenced the study and ensure freedom from researcher bias. A journal was used to reflect and record the researcher's perceptions.

- **Transferability**

According to De Vos et al (2013:420), a qualitative study's transferability to other settings may be challenging, especially to novice or non-qualitative researchers. Transferability indicates that the probability of the study findings can be meaningful when transferred to other similar settings. In this study, the researcher thickly described the data in context and reported findings with sufficient detail and precision to allow judgements and possibility of transferability to other similar context (Babbie & Mouton 2012:277).

- **Authenticity**

Authenticity refers to the extent to which qualitative researchers truthfully and honestly demonstrate that their data collection, analysis and interpretation are believable with no fabrication of findings ( Polit & Beck 2012:720). In this study, all data collection and analysis were done with integrity and honesty. Respect to the participants who were interviewed was demonstrated through verbatim references to their original information such that the meaning is truly expressed in its original form unaltered as described by them without any coercion to suite the researcher and the independent coder.

### 3.7 Ethical consideration

Polit and Beck (2012:727) define ethics as a system of moral value that is concerned with the degree to which research procedures adhere to professional, legal and social obligation to the study participants. Ethical acceptability of the study was based on the ethical consideration of participants by the researcher and not at their expense. Fundamental principles that guide researchers are based on protection of human rights in research.
De Landa (2009:3) cites the Belmont report, specifically the principles such as beneficence, respect for human dignity and justice were considered in order to observe the standards upon which ethical conduct in this study was based (Polit & Beck 2012:152). In this study, the focus was on the protection of the rights of the study institutions, rights of participants and scientific integrity.

3.7.1 Protection of the rights of the institutions

The rights of the institutions were protected by obtaining ethical clearance from the Ethical Research Committee before undertaking the study. An ethical clearance certificate was sought for and granted by the Higher Degrees Committee of the Department of Health Studies at the University of South Africa (Unisa) (Annexure A). A written permission was sought from the Gauteng Health Department under whose jurisdiction the envisaged research sites of Tshwane Health District falls (Annexure B). An approval to conduct the study at a public hospital and three PHC clinics was granted (Annexure C).

3.7.2 Protecting the rights of participants

Participants have the right to self-determination, privacy, anonymity, and confidentiality, to fair treatment, and being protected from discomfort and harm (Brink 2014:35; Polit & Beck 2012:154). Protection of the rights of participants is crucial as human subjects are protected by ethical and legal systems of most countries. In this study, the rights of participants were protected by obtaining informed consent, confidentiality and anonymity, ensuring justice, beneficence and non-maleficence, respect, self-determination, and the right to withdraw at any stage of the study.

- Informed consent

In this study, informed consent refers to the permission that the researcher obtained from the participants in relation to the research topic after full disclosure of what the research entailed and clearly explained the expectations to the participants.
The informed consent comprised the type of information from participants, their degree of understanding and their choice to give consent. The written permission was obtained in English from envisaged participants who were PNs and ENs (Brink et al 2014:38).

Prior to data collection, rapport was established with willing participants, to establish trust with them. The purpose of the study and all the relevant information on the participants leaflet concerning benefits and risks was thoroughly explained (Annexure D).

Confidentiality

According to Babbie and Mouton (2012:523), confidentiality refers to continuation of privacy that limits access of private information to others. Confidentiality was maintained by not divulging gathered information from participants to unauthorised people. The identity of participants was protected by not linking them with their responses and rather alphabet codes, pseudonyms and numbers were used to identify the transcripts (Brink et al 2014:38). All the interview scripts, digital recorders and field notes were kept under lock and key in the researcher’s office except when shared with promoters for validation of the process.

However, the findings will be disseminated through article publication in accredited journals for possible publications and presented in seminars and conferences or in-service education in the study context or other.

Anonymity

Grove et al (2013:686) define anonymity as a situation in research in which the identity of the subjects cannot be linked with the individual responses. Anonymity is not easy to attain in qualitative studies as others see participants when entering the venue designated for interviews as was the case in this study. Some of the participants suggested removal of the “do not disturb sign” from the door for privacy. The request of the participants was granted as their right and no information was linked to them. The process of anonymity or “namelessness” was observed and participants were reassured that no data would be directly linked to their names, for example, alphabets and numbers were used such as Participant 1 (see data P1, PN or EN).
Ensuring justice

According to Brink et al (2014:36), the principle of justice refers to the right of fair selection and treatment of participants in relation to the research problem only not for easy manipulation. The principle of justice refers to equitable distribution of benefits and burdens of research obligation of the researcher not to benefit others and discriminate against the vulnerable. In this study, the rights of participants were protected by showing respect for the beliefs, habits, lifestyles, different cultural background and treating them courteously and tactfully at all times during the interview (Polit & Beck 2012:155).

Beneficence

According to Polit and Beck (2012:152-153), the principle of beneficence refers to the duty of the researcher to minimise harm and maximise benefits. Although the benefits to the participant may not be immediate, the research findings provided data that contributed to their long-term benefit. The findings in this study were used to develop guidelines that would contribute towards possible revitalisation of the practice role of the clinic nurses.

Non-maleficence

The principle of, non-maleficence oblige researchers to avoid, prevent and also minimise harm to research participants (Polit & Beck 2012:152).

This study did not anticipate any risks for harm or discomfort done to the participants because there was no manipulation or invasive procedures or experimentations involved. Regardless of the fact that there were no invasive procedures, the nature of qualitative research usually explores unresolved issues, which could upset participants (Brink et al 2014:36). Two participants experienced some psychological discomfort. Accordingly, they were referred to the counsellor for counselling was organised for that purpose. More importantly, the participants were protected from any form of exploitation.
Respect for human dignity

According to Brink et al (2014:35), the principle of respect informs the researcher that people have autonomy and self-determination rights to participate in a research study without coercion. In this study, participants were protected from any form of coercion and use of penalty. They were informed that they could withdraw at any stage from the study without any pre-judgement, penalty or untoward treatment. All the views and questions asked by the participants were treated with respect during interviews without being discriminatory or judgemental. They were allowed to express their views and opinions without any interruptions, except where there was a need for clarity of meaning.

Right to self-determination

Full disclosure of the study purpose information was made available to participants before they chose to or not to participate in the research study to enable them to make an informed decision. No personal or sensitive questions that would disturb their emotions were asked except research questions that addressed the stated objectives.

Withdrawal from the study

The rights to self-determination were respected and ensured by letting participants, to willingly agree to participate, and withdraw from the research study any time if they felt that their rights were being violated or uncomfortable. The withdrawal of the participants was respected and did not in any way interfere with their normal work or jeopardised it. Two participants from one clinic withdrew from the study.

Ensuring privacy

The principle of privacy refers to keeping to self and one’s information which is not intended for others, which could be personal. Only the individuals can decide to what extent to reveal what, with whom, when and where in relation to their attitudes, ways and values. In this study, privacy and identity of participants was safeguarded and maintained at all times. The right to privacy was respected and all data collected from
the participants was treated with respect and dignity. “Covert data collection” was avoided, and no unauthorised person had access to it (Polit & Beck 2012:119).

3.7.3 Scientific integrity

Honesty and truthfulness were practised without any form of deception with regard to literature sources consulted (De Vos et al 2013:119). Honest practice was also exercised in collecting data, recording the information, writing up transcriptions, data analysis, and writing of the research report. Every presentation about this study was done truthfully adhering to the required scientific integrity. All information sources were acknowledged and appropriately recorded in the bibliography to avoid plagiarism.

All the above principles formed part of the international Bio-ethical considerations in observing the Ethical Code of professional conduct (Babbie & Mouton 2012:529; Bryman 2011:395; Polit & Beck 2012:727).

3.8 CONCLUSION

In chapter 3, detailed explanation of the research design adopted in this study was provided. The research setting, method, data collection and data analysis were also outlined. Ensuring trustworthiness and ethical considerations were described in detail. Chapter 4 describes and presents data presentation, analysis and interpretation.
CHAPTER 4

DATA ANALYSIS, PRESENTATION AND INTERPRETATION

4.1 INTRODUCTION

Collected data was synthesised and organised systematically to account for processes and methods used in data analysis (Polit & Beck 2012:125). Data analysis was done using Tech’s eight steps of qualitative analysis for textual data as cited in Creswell (2014:198-199) until themes, categories and sub-categories were identified and developed. Coding was used from the participants’ responses and patterns were identified as well as their conceptual relationships (Creswell 2014:198). Descriptive interpretive qualitative data analysis process using the eight steps of Tesch (1990:142) cited in Creswell (2014:198) was used as a guide to manually organise, analyse and interpret data (figure 4.1).

Figure 4.1  Tech’s eight step process of qualitative data analysis  
(Creswell 2014:198)
The eight steps of Tesch (1990:142) cited in Creswell (2014:198) were used for data analysis by the following process:

- The researcher listened, transcribed and typed all interviews verbatim which comprised of 12 main study interviews from the digital voice recorder to get a sense of the whole text from the participant’s responses. Each transcript was given a number and subsequent ones followed that sequence. The researcher read through the verbatim transcripts and repeated this exercise to understand the interviews and familiarised herself with the data plotting down ideas that came from the participants’ responses.
- Notes were made that linked what was observed, as was recorded on the journal, during interviews with the responses as they were remembered.
- An interesting verbatim transcript was randomly picked up at a time and read through to get an underlying meaning from the responses. During this process, emerging thoughts were written in the margin. The researcher repeated the above process several times. Core facts and ideas were noted to identify same topics emerging from the data.
- Similar topics were clustered together to identify categories that existed and organised them into major, unique and leftovers.
- The most descriptive wording for the topics was identified supported by the participants’ responses on how they practised their role in GDM anthropometric measurement values and interpretation of values and related challenges in the Tshwane PHC setting. Emerging topics were put together to form categories.
- Identified topics were abbreviated as codes and written next to the appropriate segments of the text. The researcher finalised the decision of abbreviating the categories and gave alphabetic codes by grouping similar topics together and four themes emerged.
- All material belonging to each category was assembled together in one place and preliminary analysis was performed for presentation in figures, tables and discussion (Creswell 2014:196).

All transcribed raw data was submitted to the second coder for validation of the findings. An independent coder analysed data using content analysis. The findings from the
independent coder which were similar to that of the primary researcher were merged with that of the primary researcher.

Data analysis was triangulated by using the Atlas.ti computer software version 7.0. This was used to select, organise text, develop audio data files, coding, develop memos, and findings into project files. The process was helpful for coding but very time consuming. This was done after the researcher attended training to use this software. From this approach, the codes were grouped into families and developed into analysis networks.

Similarities of the findings among the three methods were summarised, the report of the findings discussed, and final development of themes, categories and sub categories was done (Table 4.1).

4.2 PRESENTATION OF THE FINDINGS

In this study, the purpose of data analysis was to provide a structure that helped the researcher to draw out sense, importance and meaning from the data findings. In this section, only the findings from the pre-test, demographic and main study are presented and discussion and literature control is presented in chapter 4.

- Data analysis from the pre-testing interview

Pre-test data analysis was on two transcripts of the first participant. The latter was an EN who was coded and identified with an alphabet A as the participant number 1 (EN A P2) and PN identified with alphabet B as participant number 2 (PN B P1) who were clinic nurses at the PHC clinic. Although they were eligible, they did not participate in the main study. The pre-tests were done way before the main study analysis could be actualized with a purpose to assess if the instrument was of value and reliable.

The findings of biographical information in the pre-test revealed that the two clinic nurses were both females; the EN was 30 years old with 5 years’ experience and the PN was 50 years old, with 26 years of working in a PHC setting. The findings from the pre-test revealed mainly challenges such as inconsistencies and discrepancies in doing practice, shifting of nurses between adults and children, shortage of resources (human and material) that negatively impacted on their role and practice.
• Demographic findings of main study

Twelve (12) participants were included in the main study all of whom were females, n=2 (16.6%) were aged between 20-30 years, n=2 (16.6%) between 30-40 years and n=7 (58.3%) between 40-50 years with one over 50 years. Regarding qualifications n=7 (58.3%) participants were ENs and n=5 (41.6%) PNs. Concerning years of experience in PHC, n=5 (41.6%) had between 2-10 years’ experience, n=3 (25%) had between 11-20 years’ experience and n=4 (33.3%) had between 21-30 years’ experience. Regarding years of experience with children in GDM, n=6 (50%) nurses had between 2-5 years’ experience, 2 (16.6%) had between 6-10 years’ experience, n=2 (16.6%) had 11-10 years’ experience and n=2 (16.6%) had 11-12 years’ experience. Demographics of the participants are illustrated (see Table 4.1).

Table 4.1: Biographical findings information from participants (n=12)

<table>
<thead>
<tr>
<th>Variable</th>
<th>Range</th>
<th>Frequency</th>
<th>Percentage (%)</th>
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</thead>
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<tr>
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<td></td>
<td>11-20</td>
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<td>Other</td>
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<td>4</td>
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<tr>
<td></td>
<td>6-10</td>
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</tr>
<tr>
<td></td>
<td>Other</td>
<td>2</td>
<td>24</td>
</tr>
</tbody>
</table>

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Cross-referencing of the findings from the biographical information was integrated in the ensuing analysis process.

**Validation of developed guidelines**

Five experts who were called telephonically and agreed to validate the guidelines included:

- A qualified medical professor who is a renowned researcher a publisher in child specialty who is coordinating a programme in prevention and management of Severe Acute Malnutrition in a provincial hospital.
- One (1) Director who manages the PHC clinics of Tshwane Health District for the two (2) clinics where the study was conducted and also coordinating in-services for the clinics.
- One (1) Deputy-Director of the PHC clinics of Tshwane Health District for one of the clinics where the study was conducted and also coordinating in-services for the clinics.
- Two qualified PhD lecturers who are researchers and guide students in guideline development studies.
- A Delphi technique method was used to validate the guidelines.

**4.2.1 Delphi technique used for validation of guidelines**

The Delphi method was the technique or method that was systematically used to have questions answered by a panel of experts on the developed guidelines. Guidelines were sent to the five experts by post with an explanatory letter of request to participate. This was after consent was obtained telephonically. The experts answered the questions in two rounds with valuable input. Contribution was made on the application of elements from the two models by Donabedian (1988) as cited in Nicholson (2008:45-47) and Wentzel's (2008:29-33) PHC model to develop rationale, activities and recommendations. Other areas of comment was on simplicity of the guidelines, use of language that the primary consumers of the guidelines can understand and ensure that they were based on the findings for the revitalization of the practice role of the clinic nurse in context (Annexure G).
Feasibility for application of the guidelines will be tested at the study context as Dickoff et al (1968) in Kamenye, Lipinge and Van Dyk (2016:119-123) suggested in due time.

4.2.3 Presentation of findings of the main study

Reporting of findings was based upon providing a rich description of the developed themes and categories together with meaning units (see Table 4.2). Accordingly, direct verbatim quotes from the participants including field notes and memos to support these. The identified themes, categories and subcategories emerging from the findings are depicted on figure 4.2

![Diagram showing four themes]

**Figure 4.2 Identified themes**

Themes, categories and subcategories were identified and developed based on the findings.
Figure 4.3 Aspects related to nursing practice

Figure 4.3 exhibits aspects of practice based on the findings. The findings as tabled (4.2) comprised of four themes, five categories, 14 sub- categories and meaning units. Only meaning units of significant findings were included in Table 4.2. One grand tour question and four probing questions were asked.
<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Sub-categories</th>
<th>Quotes/meaning units</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>THEME 1:</strong> Practice of growth and development monitoring by clinic nurses</td>
<td>1.1 Nurses views concerning the practice of GDM</td>
<td>1.1.1 Standard of practice regarding GDM of children from birth to 5 years</td>
<td>“The practice here is that we monitor the growth and development of all children up to the age of 5 years. We start with a newborn baby by weighing him after delivery we continue at 3 days, 10 days and from 6 weeks when we do our immunisations ...every time when the child comes...week...we check if the baby is developing well, and grow according to the milestones...” (P.6). “Maybe in my room I weigh the baby without the nappy and the other person or the last person weighs the child with the nappy and with the last visit at the end of the day you don’t (banging of door next door) know whether the weight has dropped drastically or what? It would be better if we discuss how to weight babies without clothes. If the baby is wearing a nappy you won’t know whether it’s full or not? So I prefer to put the baby on the scale without a nappy or clothes so that you can be sure of the weight. Like now with the two year olds, they don’t use the scale where you sit. Sometimes in winter they put on too much clothes so you won’t know whether the weight is dropping or correct weight. Sometimes you look at the child and analyse to say (ah) maybe the weight was not right...” (PN P3)</td>
</tr>
<tr>
<td>1.1.2 Inconsistencies and discrepancies in practice</td>
<td></td>
<td></td>
<td>“We write the weight on the piece of paper every day...in the morning we weigh them before they can get their files so that when they get the files they can go to the consultation rooms.... we do our duties, we weigh all our children before we can do all our duties. We are forced to weigh the children every day...we are forced to weigh the children every day...” (EN P11).</td>
</tr>
<tr>
<td>Themes</td>
<td>Categories</td>
<td>Sub-categories</td>
<td>Quotes/meaning units</td>
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</table>
|        |            | 1.1.3 Routine assessment of GPM and APM in babies | “...before the child can be seen by the doctor we routinely weigh all babies on daily basis in order to check growth monitoring of the child whether the child is growing well or whether the child is malnourished. And the other important thing, when we are weighing these babies we do it so that the doctor can be able to prescribe medication”.

“...we check the child’s head circumference...We check the child’s weight of a child...” (PN P10)

“We do the length and the head circumference I am not sure of the others how many weeks but that’s according to the Road to health chart (RHC) booklet. As a Professional nurse (PN) when you examine the baby now with the new book you must check the length, head circumference...” (PN P3).

| THEME 2 | Interpretation of measurement values of GDM | 2.1 Interpretation of values | 2.1.1 Accuracy, correctness and precision in the interpretation of APM values | “We measure according to the percentiles, so there are those children whose percentiles you’ll find that they are higher than the normal line. You’ll find that they do need intervention even if they are not underweight, they do need intervention...” (PN P6)

“...it shows from the bottom line maybe that shows whether the child is not growing well. And we have the green line that shows that the child is growing well and the red line which shows that the weight is deteriorating and also there’s the 4th line which is green it shows that the child is overweight...” (EN P4)

| THEME 3 | The role of the clinic nurse in GDM of children | 3.1 The daily role, tasks and responsibilities of clinic nurses in GDM | 3.1.1 Health education | “...we then used to teach the mother how to feed the child...” (EN P1)

“...We also give health education to the mother about healthy balanced diet and we encourage the mother to bring the child for immunisations...” (EN P2)
<table>
<thead>
<tr>
<th>Themes</th>
<th>Categories</th>
<th>Sub-categories</th>
<th>Quotes/meaning units</th>
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<tr>
<td>3.1.2</td>
<td>Nutrition and nutritional supplements</td>
<td></td>
<td>“I give health education and ask the parent what type of feed she is giving to the child. If she is giving exclusive formula feeding...” (EN P4)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.2.3</td>
<td>“...we also have those nutritional supplements that are necessary and we also have formula for those who are under 6 months...” (P6)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.3.2</td>
<td>“…there is thing where we give Vitamin A...deworming...” (PN P7)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>3.4.2</td>
<td>“…We want to find out whether the child is growing well or maybe the child has loss of weight... (EN P4)</td>
</tr>
</tbody>
</table>

3.1.3 Record-keeping

“...We have a book where we write children that we give supplements to, it is written underweight outside. We write them in such a way that we will trace them if they don’t come back...” (PN P6)

“...we record on the RHC and we also record on the plotting system” (PN P7).

“I check if the RHC is up to date with immunisations...” (EN P2).

We do the length and the head. Road to health chart (RHC) booklet. As a Professional nurse (PN) when you examine the baby now with the new book you must check the length, head circumference and the weight so that you can prescribe medication at the end of the day or monitor the growth of the baby... “(PNP3).

“We plot the weight of the child. We are always observant because there are percentiles written on the graph lines, we follow the lines on the graph. If the child was premature we know which line we must follow because weight must not fall below...We measure according to the percentiles, so there are those children whose percentiles you’ll find...”
<table>
<thead>
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<th>Themes</th>
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<th>Sub-categories</th>
<th>Quotes/meaning units</th>
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<tbody>
<tr>
<td></td>
<td></td>
<td>3.1.4 Referral</td>
<td>“...depending on the severity of the problem we normally refer. We've got the dietician who comes only Tuesdays...” (PN P3)</td>
</tr>
<tr>
<td></td>
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<td>“If there is changes with the weight or improvement or if we are not missing anything even if it is something to do with diet but only to find that the child is sick you see... So if there’s no improvement we refer them to the hospital for further manage-ment...” (PN P6).</td>
</tr>
<tr>
<td>.theme 4</td>
<td>Challenges experienced by clinic nurses in the practice of GDM</td>
<td>4.1 Shortage of resources</td>
<td>“...Staff in fact ENs and PNs a lot of shortage. So most of the time you find yourself working from and they don’t have permanent (ah eh what’s that?) rotation schedule where they say “sister” so and so will work in that programme for at least three months so that you can get used to doing such things you know...” (PN P3)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.1 Shortage of nurses</td>
<td>“...management of the hospital will even take care that we even need more staff maybe we can allocate two nurses in the weighing room in order to do everything...” (EN P9)</td>
</tr>
<tr>
<td></td>
<td></td>
<td>4.1.2 Shifting/rotation of nurses between departments</td>
<td>“While you are there you get used to it and they change you from that department to another one. You went for workshop for one week then you were placed in that room or whatever IMCI or EPI and after a month they switch you again to say do chronic or whatever so you end up forgetting some of the things you learned and practiced...” (PN P3)</td>
</tr>
<tr>
<td></td>
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<td>4.1.3 Shortage of equipment</td>
<td>“...We don’t complete it because we don’t have the tape measures...so the length we don’t do honestly. We are supposed to measure the height but we don’t have the tape measure in our clinic for measuring the height...” (PN P5)</td>
</tr>
<tr>
<td>Themes</td>
<td>Categories</td>
<td>Sub-categories</td>
<td>Quotes/meaning units</td>
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<td></td>
<td>4.2 Non-compliance by mothers and nurses</td>
<td>4.2.1 Non-compliance by mothers/guardians</td>
<td>“...The other thing that we can’t do is those BMI on the hand because we don’t have those tapes...” (EN P9)</td>
</tr>
<tr>
<td></td>
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<td>“...Sometimes the mothers don’t comply when we give them return dates for the dietician...” (PN P5)</td>
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<td></td>
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<td>“...mother doesn’t have an RHC card...she didn’t bring it to the facility when she bought her child for ill health or whatever...” (PN P6)</td>
</tr>
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<td></td>
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<td>“...but they don’t come on their dates maybe the problem is finance...” (PN P10)</td>
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<td></td>
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<td>“...from my observation mothers don’t feed their babies,...they misuse grants... they don’t buy relevant things even when coming for check-ups...” (PN P8)</td>
</tr>
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<td></td>
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<td>“...grannies don’t listen they use their experience &amp; feed children who are supposed to be on exclusive breast or formula feeding...” (EN P1)</td>
</tr>
<tr>
<td></td>
<td>4.2.2 Follow-up</td>
<td></td>
<td>“...she will advise the mother on how to feed the child give a follow up on to come after two weeks maybe one week depending on what was the problem...” (PN P3)</td>
</tr>
<tr>
<td></td>
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<td>“Perhaps I gave the mother a follow up date and during that period I am shifted to go and do something else and a different nurse is delegated to work with children. When the mother comes for follow up, she will find a different nurse who knows nothing about the child except for her records...” (EN P1)</td>
</tr>
<tr>
<td></td>
<td>4.2.3 Non-compliance by nurses</td>
<td></td>
<td>“...some of the nurses in the clinic don’t want to be involved with the babies...I don’t think that some of the nurses do weight the growth monitoring...” (PN P5)</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>“...We as nurses like to create our own policies we don’t follow the guidelines. Sometimes you get...”</td>
</tr>
</tbody>
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Table 4.2 gave an outline of all the themes, categories, sub-categories and meaning units extrapolated from the study data.

Reporting of findings was based upon providing a rich description of the developed themes and categories together with meaning units (see Table 4.2) as direct verbatim quotes from the participants including field notes and memos to support these. Data analysis in this study was a challenging process because it could not be done in a linear fashion and there were no formulas that could be easily followed. So, it was more difficult and time consuming.

Themes, categories and subcategories were identified and developed based on the findings.

**Theme 1: Practice of growth and development monitoring by clinic nurses**

The WHO (2010:1) defines Growth and Development Monitoring as an assessment of APM values of children: referring to weight-for-height (WH), weight-for-length (WL), weight-for-age (WA), BMI-for-age, head circumference-for age, Arm circumference–for-age and Triceps skin fold-for-age using international growth standards and percentile charts (WHO 2010:1). The length of children who were less than a year were measured on a measuring board.

In this study, different views by participants concerning how they practised GDM and APM values are outlined.
Category 1.1: Nurses' views concerning the practice of GDM

The participants viewed their practice regarding GDM, APM values of children as monitoring and measuring weight, height/length, head circumference, and MUAC. However, the findings in this study revealed discrepancies and the gap of inconsistencies in their practice.

Sub-category 1.1.1: Standards of practice regarding GDM of children from birth to 5 years

According to the WHO (2008:15), standard practice on weighing children of different age groups should consider using different weighing scales. Small babies should be weighed on a digital weighing scale sitting or lying flat without clothes on. A mother could be weighed alone first and with the child and her weight subtracted from both hers’ and the baby’s weight to get the child’s weight. For older children who can stand, they should be weighed with minimal clothes without shoes on a tared scale which should be on zero for accurate reading.

The understanding of what weighing was in GDM and what it meant to the participants was described as follows:

“Maybe in my room I weigh the baby without the nappy and the other person or the last person weighs the child with the nappy, and with the last visit at the end of the day you don’t (banging of door next door) know whether the weight has dropped drastically or what? It would be better if we discuss how to measure the baby’s weight without clothes. If the baby is wearing a nappy, you won’t know whether it’s full or not? So, I prefer to put the baby on the scale without a nappy or clothes so that you can be sure of the weight. Like now with the two year olds, they don’t use the scale where you sit. Sometimes in winter, they put on too much clothes so you won’t know whether the weight is dropping or the correct weight. Sometimes you look at the child and analyse to say (ah) maybe the weight was not right...” (PN P3).

One participant revealed that some nurses in the clinic rooms did weighing differently and babies that were weighed with clothes on reflected a deviation from the standard practice and how the participant knows it. The revealed information raised concern that
the reading and analysis of the weight would be doubtful and could be erroneous. Weight monitoring should be accurate and reliable according to the WHO growth standards because inaccurate weighing, reading, recording could have a negative impact on interpretation of APM values. Any wrong decision taken owing to inaccurate measurement could lead to wrong interventions which may impact negatively on growth and development of children (WHO, 2008:15). Moreover, inappropriate practice of GDM was identified from the interviews as demonstrated in the following excerpts:

“We write the weight on the piece of paper every day…in the morning we weigh them before they can get their files so that when they get the files they can go to the consultation rooms…. we do our duties, we weigh all our children before we can do all our duties. We are forced to weigh the children every day….we are forced to weigh the children every day…” (EN P11).

Writing of weight on a piece of paper reflected poor standards of record keeping and care also to report that they were forced to weigh children was a poor indication of lack of insight on the importance of GDM. As this was an EN who was of a lower category with minimal education compared to that of PNs, it seemed that the level of education is necessary to conceptualise the importance of adhering to established guidelines, standards and protocols on GDM for the benefit of children. Although there were workshops and in-service education offered on the study construct, it was interesting to note that participants reported that they did not practice according to established guidelines and protocols. One participant added that:

“…We as nurses like to create our own policies; we don’t follow the guidelines. Sometimes you get comfortable and used to doing certain things to an extent that we create our own guideline… ” (PN P3).

The accuracy of measurements in the study was not consistent with the objective of growth monitoring for optimal growth in children.

In this study, the practice of growth monitoring included physical development of a child through constant measurement of weight, height sometimes head circumference and length. Although participants in this study, perceived GDM as an essential component of
health for children from birth to five years, their practice in reality was not according to established policies and standards.

**Subcategory 1.1.2: Inconsistencies and discrepancies in practice**

In this study, inconsistencies in the practice of growth monitoring impact negatively on the mothers’ perception about the quality of service and life of their children who are vulnerable. Deviating from the norm or standards of recording and weighing of children was reported to be done inconsistently as reported in the following responses:

“…Most nurses do not record on the RHC booklet. You will find that the graph of the line of the weight monitoring is not going well if they don’t follow the dotted lines to record the weight, they just dot the line…it’s not easy because of in most cases you find that e.g. with kids they are not done by one person (neh). Maybe in my room I weigh the baby without the nappy and the other person or the last person weighs the child with the nappy and with the last visit at the end of the day you don’t…know whether the weight has dropped drastically or what?…” (EN PA1 pre-test)

“…We as nurses like to create our own policies we don’t follow the guidelines. Sometimes you get comfortable and used to.” (PN P3)

Some of the participants described their practice as routine of weighing and also writing the weight on a piece of paper and referring children to the doctor for consultation. This excerpt from a participant confirmed the findings:

“We write the weight on the piece of paper every day. In the morning we weigh them before they can get their files so that when they get the files they can go to the consultation rooms…” (EN P11)

Nurses weighed children and gave health education only, but MUAC and BMI were not part of their practice because they had different clinics to attend to. This excerpt from a participant confirmed the findings:
“Here in the clinic each and every nurse has his own clinic. Sometimes it is very difficult to can do weight for age because we are short staffed sometimes, so we just weigh the baby and other things are done by the doctors, weight for age and height for age so we find that we can’t do it.” (EN P5).

It is evident from the excerpt that although the clinic nurses were the first on line for contact with children about GDM, their practice was limited to weighing the babies and further decisions were left to the doctors to attend to.

**Sub-category 1.1.3: Routine assessment of GDM and APM values of children**

The following excerpt clarified the understanding of the purpose of routine weighing in GDM practice and what it meant to participants:

“So before the child can be seen by the doctor we routinely weigh all babies on daily basis in order to check whether the child is growing well or whether the child is malnourished. And the other important thing, when we are weighing these babies we do it so that the doctor can be able to prescribe medication according to the weight of a child…” (PN P10).

“We used to weigh the children and check how their weight compares with the birth weight…” (EN P1).

Routine measurements of weight and height of children are crucial in identifying disorders of growth, health challenges which might need early intervention to avoid missed opportunities and delaying treatment (Coles, Neill, Bates, Phillips & Fetcher 2010:3).

One participant supported the findings by stating that:

“Ok, thank you normally what we do at our facility as PHC qualified PNs, we do growth monitoring on daily basis Monday to Fridays, during the child health services when we meet a child up to 5 years, 0 to 5 years. We check the RHC which is immunisation card actually depending on whether it’s a boy or a girl. We weigh the child and correlate the present weight and previous weight and see whether the child is growing well or malnourished…” (PN P7).
Routine weighing in this study was done in relation to assessment of malnourishment in babies and prescription of medication by doctors and compared with birth weight. Weighing was also done with height/length and head circumference when babies came for immunisations. The schedule was as follows: three days after birth, six weeks, 10 weeks, after 14 weeks 6/9 months, at 18 at 12 months until five years following the immunisation schedule. Two other excerpts from participants expressed it as follows:

“The practice here is that we monitor the growth and development of all children up to the age of five years. We start with a new-born baby by weighing him after delivery we continue at three days, 10 days and from six weeks when we do our immunisations…every time when the child comes…week…we check if the baby is developing well, and grow according to the milestones…” (PN P6).

The practice of GDM is perceived as good practice in health care globally including South Africa for children from birth to five years in the PHC facilities. However, there was a discrepancy in understanding the purpose of the GDM practice in this study, and what it meant to clinic nurses as was described by ENs and PNs respectively:

“So before the child can be seen by the doctor, we routinely weigh all babies on daily basis in order to check growth monitoring of the child whether the child is growing well or whether the child is malnourished…when we are weighing these babies we do it so that the doctor can be able to prescribe medication according to the weight of a child…” (PN P10).

Knowledge and skill to practice GDM and APM values by clinic nurses seemed to have been influenced by both education and experience. Professional nurses seemed to have better insight by virtue of their education and ENs by their experience as evidenced by the knowledgeable response of an EN in this excerpt:

“(Eh) No (eh) when I talk weighing maybe I did not specify everything here. We do weight, the mid upper arm circumference (MUAC), the head circumference and the length we do every six months. We do the MUAC every three months and the head circumference at 14 weeks and one year. Those are the measurements that we take care of like when a child comes…” (PN P6).
This finding showed that nurses engaged in routine practice of GDM and APM values as part of their daily work.

**Theme 2: Interpretation of measurement values of GDM**

From this theme, a major category emerged labelled as the interpretation and recording of APM values. One sub-category emerged which involved accuracy, correctness and precision in the interpretation of the APM values, and use Percentiles, MUAC and RHC chart for recording.

Participants reported that they do not do interpretations always because it was not their work but the doctors as expressed in the following:

“Ooh! We as nurses in the clinic we don’t interpret them always. It is doctors who do them on the graphs. So, we just see the doctor asking, do me weight with age or do me this and that. We can’t say that we are doing it every day, it’s the work of the doctor…” (EN P11 hospital-based).

There seemed to be a difference between the hospital clinic nurses and those at the three local clinics with regard to interpretation of measurement values. The hospital-based clinic nurses mainly weighed the children only and sometimes length or head circumference. However, the doctors did the rest of the GDM and APM values aspects. Three local-based clinic nurses seemed in their responses to engage more with the interpretation of measurement values because of unavailability of doctors.

**Category 2.1: Interpretation of values**

It is important for clinic nurses to measure APM values accurately, read and record precisely on the relevant charts and interpret values correctly according to the WHO Child Growth Standard. Correct interpretation of GDM and APM values is critical to the analysis of the growth faltering and classification of children accordingly for prompt intervention.
Subcategory 2.1.1: Accuracy, correctness and precision in the interpretation of APM values

The following excerpts provide evidence regarding the understanding of percentiles interpretation in the growth monitoring practice regarding weight, height/length measurement and their meaning to the PHCNs:

“...We measure according to the percentiles, so there are those children whose percentiles you’ll find that they are higher than the normal line. You’ll find that they do need intervention even if they are not underweight, they do need intervention...” (PN P6).

“I rely on the child booklet and the charts that we have in the EPI room and also our IMCI booklet now. We have a new version...We use that one to check the head circumference and the weight. Whatever we find we check whether they correlates in the right line or we have to refer the baby...” (PN P3).

Participants mentioned the head circumference but they were not clear and specific to interpreting the indicators of undernutrition assessed from underweight, wasting, stunting and overweight (Bolger et al 2012:7; WHO 2010:1). They did not even mention the length boards but mentioned measuring the length using a tape measure.

The interpretation of percentiles as described by clinic nurses in this study, indicated different lines mentioned as right line, 4th green line indicating overweight child and the red line showing deterioration. The discrepancy in practice seems to create a gap in the weight for length measurement and interpretation using WFL Z-score. Some participants reported the incorrect interpretation of values that different nurses weighed children in the clinics differently at different times with clothes and or nappies on.

“You are not supposed to put the baby with a nappy on the scale because at the end of the day you will not be sure if it is full. So, you just put the baby there with the nappy. The next visit the baby comes, the other one removes the nappy the weight won’t be correct. In our clinic we have different departments where we work but sometimes I will miss the child because I won’t interpret that weight correctly. Maybe I will tell the mother no, correct this correct this but that’s
malnutrition on its own you need to refer the child. So doing our own things at some point, it affects the patients because we miss those kids…” (PN P3).

The interpretation of the weight was affected by incorrect and inconsistent practice among the nurses themselves. It became difficult for the clinic nurses to interpret whether the weight was correct or not but when looking at the child the nurse could conclude that the weight was not right.

**Theme 3: The role of the clinic nurse in GDM of children**

In this study, role refers to the part played by clinic nurses in demonstrating skills, activities, attitudes, and the APM values in order to detect malnutrition early. From this theme, one category emerged as the role, and asks responsibilities of clinic nurses. The subcategories that emerged were on health education, nutrition and supplements, record keeping, referral, and follow-up.

Participants in this study put more emphasis on being trained on EPI and IMCI more than understanding GDM and APM values as expressed as follows when asked in the interview about GDM guidelines:

 “…yes we’ve got guidelines that we are using the EPI guidelines…we are following the guidelines which are being set by DoH…” (PN P7).

“…There are guidelines; we follow the EPI guidelines in our clinic that we keep in our file…” (PN P5).

Although the EPI programme and training on IMCI is crucial for child health and impacts on child growth, the specific skill and knowledge on GDM and APM values seem to be not emphasised enough as was realised in the interviews. Participants iterated the role, tasks and responsibilities of clinic nurses as that of dealing mostly with health education, nutrition and nutritional supplements, record keeping, referral, and follow-up.
Category 3.1: The daily role, tasks and responsibilities of clinic nurses in GDM

Tasks and duties of different categories of nurses are guided by the scope of practice (R2598) as determined by SANC (South Africa 2005) and job description of each position. The basic training of PNs and ENs may not necessarily be able to have had specific content on GDM, APM values, EPI and IMCI as the WHO initiatives in PHC settings. However, most clinic nurses undergo regular in-service education, workshops and experience of working with children in this regard. One of the participants who was an EN confirmed this in the following response:

“When the mother brings her child here we start by taking the child’s weight, length and we take the vital signs (eh mcaa eh) ok vital signs after that we compare the weight and the height especially in the EPI because I’m based on the EPI. And in most cases child that are underweight (neh) (door opened screeching and banged closed) are from the background where no one is working in the family. They are the ones that I can say in short malnourished, those that are from the background where no one is working. So in most cases we have the dietician that helps us with health education. We also give health education to the mother about healthy balanced diet and we encourage the mother to bring the child for immunisations. And if the child is underweight, we encourage the mother to bring the child after two weeks to see if she follows the correct steps. I don’t know if that answers your question? After two weeks if the child does not improve, the dietician or we nurses give there are (eh) how can I say it?” (EN P2)

Most of the clinic nurses are involved primarily practice GDM, APM values of children as their daily responsibility to. However, the findings in this study put emphasis on secondary roles such as teach the mothers, counsel them on nutrition, keep good records, refer where necessary to doctors or dietitians give follow up dates appropriately depending on the outcome of the measurements and the condition of the child.

Sub-category 3.1.1: Health education

During the interviews, probing questions were asked with regard to how they provided health education to the mothers and they expressed themselves as follows:
“...before you refer the child to the dietician, we talk to the mother and try to educate her about correct diet for the child. So, what we are normally saying to the mother is that we are not supposed to buy expensive food because even spinach is healthy to the child. What you do you take the mother aside and talk to her before you send her to the dietician and talk to her that this for instance if it is protein. But, basically what we are telling them Is that milk is the best. Milk is the best because it has everything in it especially if you are not ok. Normally we give them health education especially that mother whose child is malnourished before we can send the mother to the dietician we normally give health education to the mother..." (PN P10).

“...We advise the mother to bring the child for follow up because it is important for mothers to bring back their children for growth and development monitoring so that the nurses can know how the child is growing...We also give health education to the mother about healthy balanced diet and we encourage the mother to bring the child for immunisations..." (EN P2).

“The reason why some children don't respond, is because they don’t have the right food at home. Some children respond well after the mother is taught Depending on whether they can afford the right food..." (PN P3).

“...we then used to teach the mother how to feed the child..." (EN P1).

“I give health education and ask the parent what type of feed she is giving to the child. If she is giving exclusive formula feeding..." (EN P4)

According to the excerpts reported on, it is evident that clinic nurses give health education as the mothers present their children for consultation and they teach them mostly about the correct type of food and immunisations (WHO 2014:15).

**Sub-category 3.1.2: Nutrition and nutritional supplements**

The emphasis with regard to nutrition was to make mothers aware of foods planted in their own gardens as essential to feed their children as showed in these excerpts:

“Nowadays there are dieticians in the clinics. So, when children are underweight we do teach but most of the time teaching is done by dieticians. Much can be
done for children to grow and develop better. Mothers need to be encouraged to do vegetable gardens in their homes. People used to do vegetable gardens but now they no longer do them. We don’t know why, perhaps because people are Westernised or the water rates are expensive. People were taught to water their gardens with water used for bathing. Maybe Westernisation spoiled things because people bath and just open the drain to let the water run out. If it was possible vegetable gardens could be made in the clinics for malnourished children…” (EN P1).

Another participant reinforced this finding by stating that:

“…we assess the children according to the way they grow neh? We assess the hair, the skin and usually we ask the mother what did they feed the child and usually we assess how should I put it? We assess the way they grow, their skin is malnourished. We ask the mother about the grants, about how they are used. Usually we find that mothers use grants for their own benefits they can’t buy children food and clothes neh? From there we can send the mothers to the dieticians to get advice about food. We encourage mothers to do small gardens at home. They must not buy expensive food but this ordinary food like spinach, pumpkin, mash potatoes, vegetables, and fruits. Because when you ask the mothers they will always tell you, I give the child what is it? Danone and it’s a snack not a fruit. Children who eat vegetables you can see that the child is well nourished. And then sometimes when they get information from the dietician they started to be okay and some relapse more”… (EN P8).

Participants viewed their role as that of handing out of nutritional supplements as evidenced by the following excerpts:

“…we also have those nutritional supplements that are necessary and we also have formula for those who are under 6 months…” (PN P6).

“…there is this thing where we give Vitamin A…deworming…” (PN P7)

“…concerning guidelines, they show how to give and when to vitamin A supplementation and guide you when the child is brought for immunisations”… (EN P4).
It was evident that participants in their current practice give nutritional supplements, formula feeds for those under six months and vitamin A with deworming to all children as the mother brings the child to the clinic.

- **Assessment of malnourishment**

Assessment is the first step in the scientific nursing process that guides nurses in formulating a nursing diagnosis based on the assessment of the patient’s expressed and observed needs according to the North American Nursing Diagnosis Association (NANDA) (De Wit O’Neill 2014:60).

The reasons for conducting nutritional assessments were stated as follows:

“…We want to find out whether the child is growing well or maybe the child has loss of weight…” (EN P4).

“We want to find out whether the child is growing well or maybe the child has loss of weight. You do have those that when you ask questions, how are you feeding your child, what do you feed your child on daily basis? You realise that there is no balanced diet there. We assess the way…how they grow…their skin is malnourished…” (PN P6).

Uncomplicated severe malnutrition assesses same measurements of WFH/L, MUAC as for initial visit and oedema of both feet. Appetite should be checked by offering ready – to-use therapeutic food (RUFT) in a child aged six months or older.

**Subcategory 3.1.3: Record-keeping**

Record-keeping of all that nurses do or not do in their role as they care to patients is critical according to their Scope of Practice such as (R2598) and acts and omissions (R767) as stipulated in the SANC (South Africa 2005). In this context, recording that was done by participants constituted of a daily logbook, RHC, MUAC, and Percentile BMI chart.
• **Daily log book**

Participants explained their understanding of what record keeping of health matters regarding GDM of children on consultation and who needed to be followed up meant in their role and this was evidenced by the following excerpt:

“...I have a book that I record the children who are malnourished...We have a book where we record the mother’s details: house number and phone number ...We have a book where we write children that we give supplements to, it is written underweight outside. We write them in such a way that we will trace them if they don’t come back...” (PN P6).

“...we record on the RHC and we also record on the plotting system”... (P7).

“...We have a book where we record the mother’s details: house number and phone number...” (P2).

• **Standards for using RHC in growth monitoring**

The use of RHC chart is perceived as a powerful tool for screening growth and development of children 0-5 years in developing countries with a potential to decrease the prevalence of malnutrition. The following excerpts provide evidence regarding the skill on the use of the RHC charts in the growth monitoring practice and the interpretation of its meaning to the clinic nurses:

“I rely on the child booklet and the charts that we have in the EPI room and also our IMCI booklet now we have a new version. Unfortunately we have one copy but we made copies...Ok we do it (eh), we’ve got EPI (eh) room whereby every baby that comes for immunisations and whatever must be weighed. We do the length and the head. Road to health chart (RHC) booklet. As a Professional nurse (PN) when you examine the baby now with the new book you must check the length, head circumference and the weight so that you can prescribe medication at the end of the day or monitor the growth of the baby...” (PN P3).

“...I check if the RHC is up to date with immunisations...” (P2)

“...we record on the RHC and we also record on the plotting system” (P7).
“We used to measure the child’s length/height and head circumference. We use to refer to a guide for the head circumference, even though I can't remember everything because I don’t have it with me On the RHC book there is a graph that shows that the baby is growing inside or outside the graph…” (EN P6).

Participants explained the importance of using the RHC in relation to what it meant to them on recording their practice of GDM and APM values of children. Participants used and understood the RHC as a guide on how the child grows, a graph for plotting weight as well as checking if immunisation is up to date. However, the interpretation regarding the use of the RHC was not clear from some participants.

**Use of MUAC chart**

Understanding of MUAC in growth monitoring and what it meant was demonstrated as follows:

“(Eh) No (eh)…when I talk weighing maybe I did not specify everything here. We do weight, the mid-upper arm circumference (MUAC), the head circumference and the length we do every six months. We do the MUAC, every three months and the head circumference at 14 weeks and 1 year. Those are the measurements that we take care of like when a child comes…” (PN P6).

“…we do measurement of MUAC and we also do the head circumference…” (EN P4).

“We mark the MUAC, length and head circumference on the RHC of a child…It's easy if I've got it. On the RHC we've got, there is a part for weighing part for length part for measurement of MUAC and head circumference. The MUAC we measure every 3months, the height at 14 weeks and 12 months…” (EN P2).

It is important for the health workers to know how to measure MUAC and also be able to interpret it because it is fast, and effective first line that enables them to identify acute malnutrition (Partners in Health 2013:1).
Some of the participants interpreted MUAC as expressed in the following excerpt:

“…there is a tape we are using (holding a colourful tape in her hand). I can show you this one in my hand (giggling) even if you won’t see it on the screen. This tape is yellow, green and red. Normally what we do is, normally what we know is red is a danger sign which shows us that something is wrong with somebody, normally the child under the age of 5 years. Yellow means it’s a watchdog which means when the child is on yellow side you must watch…” (PN P6).

The colours on the tape aid the interpretation of the MUAC measurements; green for normal, yellow for caution and red for undernutrition. The MUAC measurement assesses the muscle mass which is reduced in stunted children. The ability to measure, accurately read and interpret precisely the MUAC chart measurements in the growth monitoring practice. The following excerpts scantily and inadequately provide evidence regarding the interpretation of its meaning:

“We dot in the graph…(Eh) No (eh) when I talk weighing maybe I did not specify everything here. We do weight, the mid upper arm circumference (MUAC), the head circumference and the length we do every six months. We do the MUAC every three months and the head circumference at 14 weeks and 1 year. Those are the measurements that we take care of like when a child comes…” (EN P12).

It is evident from the excerpts that participants used the special colour coded tapes to interpret MUAC measurements with the normal range stated as 13cm.

- **Percentiles BMI**

The participants described how they understood the percentiles and interpreted weight, height/length in GDM and the meaning thereof as evidenced in the following excerpts:

“We plot the weight of the child. We are always observant because there are percentiles written on the graph lines, we follow the lines on the graph. If the child was premature, we know which line we must follow because weight must not fall below...We measure according to the percentiles, so there are those children whose percentiles you’ll find that they are higher than the normal line. You’ll find
that they do need intervention even if they are not underweight, they do need intervention…” (PN P6).

The weight below or above 95th percentile is indicative of obesity and the weight on or above 85th percentile is indicative of overweight. Obesity refers to a BMI of 30 or more whereas overweight refers to a BMI of 25-29.9 in relation to the amount of body fat. Calculation of BMI on children helps to optimise the children’s health outcomes.

**Sub-category 3.1.4: Referral**

Nurses form part of the multidisciplinary team that affords children, individuals and families a holistic approach of care through collaboration with the relevant team members. Participants described the task of referral and its implication to their clinical role. Two participants expressed that:

“Maybe the child is not growing well we advise on the diet. So, there is a programme for under masses, whereby mothers are asked to bring children for follow up. They are always placed on a programme, so that when they come for monitoring proper follow-ups can be made to prevent defaulting. And we do have a dietician in the clinic where the under masses are referred to because there are supplements given to the children depending on age…” (PN B P2).

“…If the baby is worse and the dietician is not there we refer to hospital so that the child can be managed in higher level institution not here. Depending on the severity of the patient when you see them, if they are not severe we refer them to the dietician by booking the child for a follow up by her on Tuesdays…” (PN P3).

The notion of referring a child according to severity of malnutrition is of concern as participants seemed not to be well versed with how to interpret APM values which may lead to under reporting and consequently deterioration of the child’s condition.

**Sub-category 3.1.5: Follow-up**

Participants reported that they had an underweight book used for recording mothers’ details and children on supplements for easier follow-up. The following excerpts demonstrated this recording task for effective follow-up:
“...We have a book where we record the mother’s details: house number and phone number...” (EN P2).

“...We have a book where we write children that we give supplements to, it is written underweight outside. We write them in such a way that we will trace them if they don’t come back...” (PN P6).

The excerpts revealed that the nurses kept record of malnourished children in order to trace them. The challenge experienced was that of non-compliance regarding bringing back children for follow-up which had negative outcomes concerning the growth and nutritional status of the children. It is very important that a proper follow-up system be established, monitored and sustained in the PHC structure to ensure continuity of care and prevention of complications, especially in children in the meaning units in Table 4.2 Participants expressed their views about the value of adherence and compliance. Additional excerpts to express this are as follows:

“...the child is brought for the second time to the clinic you give the mother weekly follow-ups in order to weigh the child...” (EN P1).

During the interviews, participants answered the probing questions on this sub-category. They stated that they gave mothers weekly or two weekly follow-ups to weigh the child and check the nutritional status based on the counselling given and also depending on the child’s condition (WHO 2014:28).

**Theme 4: Challenges experienced by clinic nurses in the practice of GDM**

Challenges in this study referred to difficult encounters that were faced by the participants regarding GDM. These findings as challenges included shortage of staff and equipment, shifting of nurses between departments and non-compliance of clinic nurses to established standards of practice and that of mothers.

From this theme, two categories emerged which were shortage of human and material resources and non-compliance by nurses and mothers/guardians.
Category 4.1: Shortage of resources

Lack of resources in this study referred to scarcity of staff and equipment which is needed for effective practice. Lack of resources related to human and material needed in GDM of children and interpretation of APM values. Participants expressed their frustration with regard to this category as a major challenge for clinic nurses in the PHC setting which is beyond their control. Moreover, lack of resources affected growth monitoring measurement and accurate interpretation of values.

Sub-category 4.1.1: Shortage of nurses

Shortage of nurses as a challenge referred to absence or scarcity of clinic nurses that are needed to care for patients, especially children. The participants described the challenge of shortage of nurses and what it meant to them in their practice and role of GDM and APM values of children and it was evidenced by the following excerpts:

“We are not enough to practice and children are many…” (EN P1).

Participants reported a challenge of shortage of clinic nurses as the finding revealed that children were many and were waiting queues for attention. As such, participants reported being exposed to overload of work which led to absenteeism mostly depleting the already scanty staff. Participants expressed this frustration as follows:

“The work becomes too much. It gets to such an extent that when you go home you are exhausted which leads to absenteeism (smiling). Because of you know even "Oh my God!" it’s going to be me alone again with queues, long queues it becomes a problem.”

Some participants reported that they manage and plan for the clinic nurses’ activities including GDM and APM values of children. However, matters of sick leave, family responsibilities and unforeseen circumstances among them lead to shortage of staff with adverse effects on how they need to optimally practice their role. A participant who confirmed the findings are captured in the excerpt below:
“Unfortunately, I cannot say that we have enough nurses because we have our
day-offs. We do have people who go on their annual leave; we do have people
who are sick and people who have family responsibilities those are the
challenges. If we are all here when we are supposed to be here, then we work
very nice. But if one of us has a problem that she cannot come to work, that is a
challenge, you see. At times, you will find that one “sister” has a family
responsibility, the other one is sick and we are supposed to be four on duty and
then we are remaining with two. In our mother and child service you see the
mother and the child at the same time. You also do our antenatal clinic, attend to
new bookings, attend to new babies and also attend to EPI. Those are the things
we do on a daily basis and the queue is one…” (PN P6).

The new approach is to attend to the health needs of both mother and child
simultaneously. This has made consultations a little longer. In addition, poor control
measures exacerbated this situation resulting in a large number of patients from other
geographical areas not allocated for the clinic attend the service, therefore increasing
the workload. It is reported in the following excerpt:

“(Eh) it is common knowledge that patients like to come to a certain clinic. They
choose to go to a certain clinic and when they come to your clinic (eh) we have a
lot of patients and advise them to please next time go to their nearest clinic…(PN
P6)”.

The participants reported that they were unable to attend in-service education on the
study construct owing to shortage of staff, as such not all of them working with children
were trained in GDM, APM values, and the interpretation of values as noted in the
following excerpt:

“(Uh we) it is supposed to be done , in-service training at least once in a month
on different (what’s this) programmes whether or whatsoever but then as I have
said in the most cases we don’t have time to do so It’s because of why? There’s
a lot of shortage and absenteeism. So at the end of the day the clinic is so small
but then it has a lot of patients. To deliver quality they talk about waiting time and
stuff. The patient must not be in the clinic for ten hours then you feel (gore ah ah)
that now I must push…” (PN P3).
Shortage of staff as described by the participants appeared to be frustrating because before they could get acquainted to working in a particular programme they were moved elsewhere owing to shortage of staff.

**Sub-category 4.1.2: Shifting/rotation of nurses between departments**

Rotation of nurses or changing of nurses constantly in this study had an impact on continuity of care to mother and child as well as child growth monitoring. The following verbatim quotes illustrated a finding on this aspect as follows:

“It becomes a challenge (eh) to have someone work in the same place every single day. So, if it’s someone else they might miss something. But if it’ somebody that comes in that room or who attends to that child (eh) child care everyday they will know what to do. In our clinic they make sure that we have a team that is working in mother and child. So if one is off one will be around so some of the things we do miss but not because we don’t know. But we work in such a way that we finish up the…” (PN P6).

Shifting or rotation of nurses and what it meant to them in their practice was evidenced in the following excerpts:

“Perhaps I gave the mother a follow-up date and during that period I am shifted to go and do something else and a different nurse is delegated to work with children. When the mother comes for follow-up, she will find a different nurse who knows nothing about the child except for her records…” (EN P1).

“…like I said I don’t work (eh) permanently with EPI babies and sick babies in our clinic. In our clinic we have different departments where we work but sometimes I will miss the child because I won’t interpret that weight correctly…” (PN P3).

This significant evidence from the excerpts highlighted the challenges that were associated with the relationship of the nurse with mothers in relation to GDM and continuity of care which gets disrupted with the allocation changes.
One participant lamented that:

"While you are there you get used to it and they change you from that department to another one. You went for workshop for one week then you were placed in that room or whatever IMCI or EPI and after a month they switch you again to say do chronic or whatever so you end up forgetting some of the things you learned and practiced..." (PN P3).

In this study, the shifting or constant changing of nurses who work with children could pose a possible reliability challenge regarding MUAC measurement in early identification of SAM.

Participants described the challenges they experienced because of rotation. It was evident from the excerpts that these challenges affected effective growth monitoring and APM values of children such as MUAC.

**Sub-category 4.1.2: Shortage of equipment**

Lack of adequate resources in the PHC settings was revealed in the findings; for example, tape measures for height/length, lack of measuring board for children less than a year, BMI tapes including weighing scales and this resulted in omission or incomplete measurements. Different tape measures were used in each setting to measure height/length as reported by participants who compromised the accuracy of values.

Participants explained that height/length was not measured because of a lack of tape measure in some clinics and the hospital. They reported that their manager informed them to bring their own tape measures from home. This reflects the willingness of the manager to encourage hospital clinic nurses to use available home tape measures to improvise but has no insight on how the use of different tapes could lower the standards of practice. The finding was confirmed by one of the participants who was the Unit Manager:

"I encourage the nurses to bring their own tape measure because sometimes you'll find nurses use it and they can't remember where you put it. So I encourage the nurses to at least have their own help... " (PN P10).
Clinic nurses practice their role in GDM, APM values under conditions with limited resources or none as expressed. Nevertheless, they demonstrated a willingness to improvise by bringing their own tape measures from home. The use of home tape measures undermines adherence to standards of GDM, APM values of children and consistency. However, other participants from another clinic reported that they do not measure height/length and omitted it because they were promised tape measures but to the date of data collection nothing happened. This raises concern over the use, control of equipment and adherence to standards, policies including protocols that guide clinic nurses in GDM and APM values.

Some participants reported that due to poor furniture structure such as uneven table on which the weighing scale is placed at the working environment, could affect the measurements of weight on that scale. Some participants expressed concern over poor equipment and its impact on GDM and reading of measurements. This excerpt from a participant confirmed the finding:

“The other thing is a problem of furniture the space is small. Like in room, I don't know if you have been to room 5. The table, the “sister” is using that table, you cannot even put the scale there and once you put the baby I don’t think that it will give you correct readings you understand, those are the other challenges that we have…” (PN P3).

The understanding of what the challenge of lack of resources meant to the clinic nurses in their practice and role of GDM and APM of children was evidenced also by the following excerpts:

“…we don’t have enough equipment like I am saying (Tswana: di room tse ding tsa bo “sister”) (English: some of the “sister’s” rooms) don’t have scales whereas in here in the cupboard we only have one adult scale…” (EN P4).

The shortage of such crucial equipment questions consistency of adhering to the standards and also different interpretations of the measurements which creates different results. However, some participants omitted the measurements and used only what was
available. This situation put all clinic nurses in a position where quality was compromised.

**Category 4.2: Non-compliance of mothers and clinic nurses**

Growth assessment of children who are brought to the PHC clinics entails a series of weighing, measurements and interpretation of the values to identify deviation from the norm for prompt intervention. Participants expressed their views about the value of adherence and compliance. Additional excerpts to express this are as follows:

“…the child is brought for the second time to the clinic you give the mother weekly follow ups in order to weigh the child…” (EN P1).

However, for the clinic nurses to be able to perform their duties according to expected standards, they need mothers to cooperate with them.

**Sub-category 4.2.1: Non-compliance of mothers/guardians**

Non-compliance in honouring scheduled times by mothers in bringing the RHC cards for visits and children for follow-up was reported as challenging.

All participants in the study reported that some parents did not comply in time in bringing the RHC cards to the clinics stating that they either forgot the cards or had financial problems. However, some visiting mothers gave clinic nurses wrong addresses or cell phone numbers and did not bring their children back for follow-up after two weeks. A participant who said confirmed this finding:

“At times we used to do a small research to check how many are having the card by asking them to raise their hands and someone will be counting. You will find that the clinic is full but only 3 are having those cards, you see.” (P10).

Another participant confirmed the finding of non-compliance regarding bringing children back for follow-up and stated that:
"Before immunisation of children everyone at the clinic get advice on the importance of how to feed children. However, when they are home they don’t comply. Mothers who are HIV positive should come for the PCR test of their children at six weeks but some of them only bring them only after 3 months...”

(EN P2).

In this study, mothers’ non-compliance might be owing to lack of understanding the significance of their cooperation for the benefit of their children. This could be improved through direct teaching about the child growth standards and the importance of the RHC.

Parents were reported to be misusing government child support grants buying non-nutritious food for their children. The finding was confirmed by the excerpt from a participant who said:

"But those ones that are malnourished that the mother does not feed well it’s when we are intervening a lot. And you will find that those mothers what I have observed, with these mothers at this moment they don’t cook for their babies they buy (sphatlo) meaning bread stuffed with atchaar, chips and polony sometimes..."

(PO P10).

Grannies were reported to have fed children with soft porridge who were on exclusive breast or formula feeds because they used their experience for feeding children and did not listen to the nurses. This finding was evidenced by an excerpt from a participant:

"We must just play a major role helping the mothers especially the new mothers who are not having grannies, health education is very important. Talk in the language that the patient understands so that we don’t use medical terms, use the language which the mother can understand." (PN P10).

Almost all participants in this study reported that mothers did not give proper food to their children. This is despite the health education they received at the clinic from the nurses and dieticians.
Sub-category 4.2.2: Non-compliance of clinic nurses to standards, policies and protocols

Some of the findings included non-compliance of nurses to the new WHO standards, policies, protocols and guidelines on GDM. Participants revealed that although nurses are aware of the policies and standards that guide their practice, they do not follow them. An excerpt from a participant confirmed this finding:

“I’m sorry to say this. We as nurses like to create our own policies we don’t follow the guidelines. Sometimes you get comfortable and used to doing certain things to an extent that we create our own guideline. Like you saying (agh) its fine you just minus zero, something from the nappy as you understand. That’s creating your own policies at the end of the day because I know that whatever that we have a policy that says how we must do it. So in most cases we create our own policies. That’s why you’ll find different nurses doing different things…” (PN P3).

Health care managers in the PHC settings are accountable for ensuring delivery of integrated health care services to all children who use them and adherence by the clinic nurses to standards and relevant policies for childcare is imperative.

4.3 CONCLUSION

This chapter highlighted the qualitative data analysis process according to Tesch’s eight steps of data analysis cited in (Creswell 2014:198). The data analysis process was triangulated by the use of Atlas.ti (Archer 2013:1) computer software version 7.0 and content analysis by the independent coder. Data were prepared, organised, sorted, managed coded and analysed until themes, categories and sub-categories emerged and meaning units utilised to arrive at findings and meaning attached. The findings in this study formed the basis for the discussion and the development of guidelines for practice revitalisation of the role of the clinic nurses regarding GDM of children and APM interpretation of values and related challenges. Discussion of the findings is presented in chapter 5.
CHAPTER 5

DISCUSSIONS, CONCLUSIONS, LIMITATIONS, RECOMMENDATIONS AND IMPLICATIONS

5.1 INTRODUCTION

This chapter briefly introduced the discussions, conclusions, limitations, and recommendations of the study. Major research findings validated with relevant literature were presented in the previous chapter leading to conclusions based on the research objectives. The recommendations and implications in terms of clinical practice, nursing education and further research based on how the clinic nurses should practice their role in GDM, APM values of children are presented.

ATLAS.ti computer software version 7.0 was used in analysis of data. The software enabled the researcher to enter the entire data file onto the computer, code each portion of the narrative then retrieve and display text for specified codes for analysis. An independent coder assisted with data analysis using content analysis for triangulation and validation purposes. In this chapter, discussion of findings is presented. Similarities of the findings among the three methods of data analysis were summarised and the report of the findings presented in chapter 3 followed by the discussion based on the developed themes, categories and subcategories (see Table 4.2).

The researcher provided contribution of the study findings to a wider scholarship, a brief reflection of the research journey and how the findings will be disseminated.

Purpose of the study

The purpose of this study was to explore and describe how clinic nurses practice their role regarding GDM and APM values of children and interpretation of their values and related challenges in the PHC setting. The study intended to utilise the findings to develop guidelines for revitalisation of the practice role of nurses in the clinics.
A quantitative, explorative, descriptive, and contextual research design was used to conduct the study. The rationale for using this design was to generate qualitative data from rich informants as clinic nurses who are at the implementation level of processes, procedures, initiatives, and approaches to care for children. The ultimate goal was to investigate how the practice role of the clinic nurse can be revitalized specifically in conducting GDM for children.

5.2 DISCUSSIONS

The discussions in this study were based on the major findings which demonstrated reinforcement of what is already known about the role of clinic nurses on GDM of children and their related challenges. Most studies that were conducted previously were mostly quantitative and focused on the use of the RHC in GDM with remarkable contributions to the knowledge base of improving quality of care for children. However, this study used a qualitative approach which led to the discovery of salient issues that only can be elicited through conversations with participants. The major findings were on aspects such as practice standards of GDM, dealing with inconsistencies, discrepancies and incorrect interpretation of APM values of children from birth to five years; role, responsibilities and tasks of clinic nurses; shortage of resources and non-compliances by mothers and nurses.

5.2.1 Practice standards of growth and development monitoring by clinic nurses

The WHO (2010:1) defines Growth and Development Monitoring as an assessment of APM values of children: referring to weight-for-height (WH), weight-for-length (WL), weight-for-age (WA), BMI-for-age, head circumference-for age, Arm circumference–for-age and Triceps skin fold-for-age using international growth standards and percentile charts. The length of children who were less than a year was measured on a measuring board.

The practice of growth monitoring is a process through which the child’s growth rate is monitored using APM compared to growth standards in order to identify deviations from the norm (WHO 2010:1). According to the WHO Growth Charts (2010:3), APM values are used to determine body fat composition by measuring, recording and analysing body dimensions such as height, weight and MUAC. Practice could be prescriptive for
health professionals to validate the basis upon which nursing theory must be developed (Brink et al 2014:24; McEwen & Wills 2007:413).

According to the WHO (2008:15-16), standard practice on weighing children of different age groups should consider using different weighing scales. Small babies should be weighed on a digital weighing scale sitting or lying flat without clothes on. A mother could be weighed alone first and with the child and her weight subtracted from both hers' and the baby’s weight to get the child’s weight. For older children who can stand, they should be weighed with minimal clothes without shoes on a tared scale which should be on zero for accurate reading. The revealed information raised concern that the reading and analysis of the weight would be doubtful and could be erroneous. Weight monitoring should be accurate and reliable according to the WHO growth standards because inaccurate weighing, reading and recording could have a negative impact on interpretation of APM values. Any wrong decision taken owing to inaccurate measurement could lead to wrong interventions which may impact negatively on growth and development of children (WHO 2008:15).

The accuracy of measurements in the study was not consistent with the objective of growth monitoring for optimal growth in children. Accuracy and consistency in GDM of should provide precise measurements of weight, length height and head circumference which is supported by the Canadian Paediatric Child Health in line with the WHO (2011:250) child growth standards. Practicing GDM accurately enables care providers to identify deviation from the normal growth pattern and trends of children early. Potential nutritional problems are also identified to facilitate early intervention and improve long-term outcomes (Government of Western Australia 2014:2; Dieticians of Canada & Canadian Paediatric Society, 2010:14).

5.2.2 Inconsistencies, discrepancies and accuracy in applying the GDM standard

Discrepancies and inconsistent weighing of small children with clothes on missed or omitted measurements such as height/length, inaccurate and ineffective plotting on the graph leads to incorrect reading of measurements. According to the WHO (2008:15), the standard of practice on weighing children of different age groups should consider using different weighing scales. The best practice protocol of Alberta Health Services
(2014:6) in Australia provides clear guidelines on measuring weight, height, length, and upper arm length of children from birth to two years and from 2-19 years of age. The use of dry disposable diaper in small children, those wearing a cultural head piece and also children with disabilities’ needs are addressed in detail.

Best practice, as recommended by Canada and Australia, put emphasis on accuracy, consistency and precision in growth monitoring of children for their optimal measurements to identify faltering growth, to warn parents about failure to thrive and educate them on supplementation (Dieticians of Canada & Canadian Paediatric Society, 2010:78; Government of Western Australia DoH 2014:2).

Accuracy, reliability and precision by those who do measurements are recommended in GDM and APM values to enable the clinic nurse to make best clinical judgement regarding normal growth and development of children based on a series of accurate and precise measurements (Dieticians of Canada & Canadian Paediatric Society 2010:79). The maintenance of standards for accuracy, reliability, appropriateness, and precision of skills and technique in the series of GDM and APM values using correct tools will enable clinic nurses to improve quality of childcare, to be cautious and consistent in promotion of optimal growth of children (Marchand 2016:1).

The discrepancy in practice seems to create a gap in the weight for length measurement and interpretation using WFL Z-score. Some participants reported the incorrect interpretation of values that different nurses weighed children in the clinics differently at different times wearing clothes and or nappies.

The interpretation of the weight was affected by incorrect and inconsistent practice among the nurses. It became difficult for the clinic nurses to interpret whether the weight was correct or not but when looking at the child, the nurse could conclude that the weight was not right. According to the WHO (2010:1), accurate interpretation of GDM and APM values provide important information indicating whether measurements of weight, height/length MUAC and BMI percentiles have deviations as described.

Accuracy in GDM and APM refer to components of accurate quality equipment which is regularly calibrated, standardised measurement technique and reliable trained measurers that are precise in their technique (Alberta Health Services 2014:3).
practice of GDM and APM of children by clinic nurses is a vital assessment measure in childcare through which their growth development patterns, health progress and well-being are identified. Therefore, the practice of how nurses apply the standards, knowledge and skill in GDM of children demands consistency, accuracy and precision for better health outcomes. The findings in this study revealed discrepancies and the gap of inconsistencies in the clinic nurses’ practice as common. Discrepancies and the gap of inconsistent weighing of small children with clothes on missed or omitted measurements such as height/length, inaccurate and ineffectiveness in plotting on the graph lead to incorrect reading of measurements. This practice led to missed reading of the actual measurement with an erroneous understanding of what the child’s growth pattern is like in relation to the measurements. Often this led to misidentified growth faltering pattern, wrong classification and inappropriate interventions with adverse outcomes such as SAM which is a current challenge for child health and survival. Correct interpretation of accurate APM values is critical in precise analysis of malnutrition indicators in children following the measurements to avoid misinterpreting deviation of the weight as a norm (WHO 2010:1).

This compromised practice leads to missing the identification of malnutrition indicators such as stunting, wasting and underweight. The inconsistency of interpreting the APM values using SD, Z scores and Percentile BMI ranges was discovered in the study as participants used a blanket concept called “underpass” which was not qualified. According to Wang and Chen (2012:31), the calculation of the BMI percentile is used to interpret measurements by comparing of the child’s weight to the height to get the BMI range. The significance of calculating the BMI Percentile for interpretation enables the nurses to identify whether the child is having failure to thrive or concurrent illness indicated by the weight below the 5th percentile. The weight below or above 95th percentile is indicative of obesity and the weight on or above 85th percentile is indicative of overweight. Calculation of BMI on children helps to optimise their health outcomes.

A difference of practice between hospital-based clinic nurses and those at local clinics as stand-alone was that hospital clinic nurses practiced minimal GDM of children as doctors did most of the practice. This is a challenge because these hospital nurses routinely weighed children, gave health education only and helped doctors in the different clinics. However, MUAC and BMI was not part of their practice and they missed out on new skill development regarding growth and development of children. Locally based clinic nurses had more exposure and experience on the practice of the
standards but still had challenges that affected the ideal practice. Whether nurses are based at the hospital or local clinics, the standards of childcare should consistently uphold principles of quality care. Best practice, as recommended by Australia (2015: 6), put emphasis on accuracy, consistency and precision in growth monitoring of children in order to identify faltering growth measurements to warn mothers about failure to thrive and educate them on supplementation aimed at achievement of optimal growth of children. The clinic nurses in this study will be enabled through the practice revitalisation process to identify: deviation from the normal growth pattern and risk nutritional problems (Government of Western Australia 2015:2; Dieticians of Canada & Canadian Paediatric Society 2010:14).
5.2.3 Routine assessment of growth and development monitoring of children

According to O’Leary and Mhaolrunaiqh (2012:1), nurses are perceived as not questioning routine practices. However, a need was raised for regular review and updating of nursing practice at different organisational settings.

Routine measurements of weight and height of children are crucial in identifying disorders of growth, health challenges which might need early intervention to avoid missed opportunities and delaying treatment (Coles, Neill, Bates, Phillips & Fetcher 2010:3). Routine weighing in this study was done in relation to assessment of malnourishment in babies and prescription of medication by doctors and compared with birth weight. Weighing was also done with height/length and head circumference when babies came for immunisations. The schedule was as follows: three days after birth, six weeks, 10 weeks, after 14 weeks six/nine months, at 18 at 12 months until five years following the immunisation schedule. The awareness on GDM practice by clinic nurses and mothers is consistent with the findings from a study on health workers’ awareness of the need to routinely weigh children according to international guidelines on GDM (Bilal, Moser, Blanco, Spigt & Dinant 2014:441).

According to Mwangome, Fegan, Fulford, Prentice and Berkley (2012:887), even though WFH/L is recommended to diagnose SAM in children below five years, information on its reliability in all settings has been reported as sparse. The practice of GDM is perceived as good practice in health care globally including South Africa for children from birth to five years in the PHC facilities. However, there was a discrepancy in understanding the purpose of the GDM practice in this study and what it meant to clinic nurses.

Clinic nurses engage in routine practice of GDM and APM values as part of their daily work. However, adherence to international standards is another matter. According to Bilal et al (2014:441), the use of growth monitoring promotion is a global initiative that was intended to reduce child mortality by two thirds in 2015 through the MDGs. Mothers are aware of the need for regular weight monitoring of their children and health workers are also aware of how to practice GDM according to international guidelines (ibid). Currently in SA, the focus is on the UN’s SDGs 2 & 3.
5.2.4 Interpretation of Anthropometric measurement values of growth and development monitoring of children

The interpretation of weight, height/length and head circumference in growth monitoring is crucial to identify deviations from a norm. Child growth is globally recognised as an important indicator of nutritional imbalance that leads to undernutrition assessed from underweight, wasting, stunting, and overweight (Bolger et al 2012:7; WHO 2010:1).

According to the report on underweight from 18, 420 children from CDC growth charts in the USA and the WHO charts, differences in interpretation of what was underweight by CDC and normal by the WHO or underweight by both had adverse outcomes on children. Therefore, the WHO growth standards were reported to depict normal growth under optimal conditions and recommended for use globally. They could be used in assessment of children, regardless of ethnicity, socio-economic status and type of feeding (Meyers, Joyce, Coleman, Cook, Cutts, De Cuba, Heeren, Rose-Jacobs, Black, Casey, Chilton, Sandel & Frank 2013:e1780; WHO 2006:76).

Based on the findings, it was evident that hospital clinic nurses and those at the three local clinics interpreted of measurement values differently. The hospital-based clinic nurses mainly weighed the children only and sometimes did length or head circumference but the doctors did the rest of the GDM and APM values aspects. Conversely, three local-based clinic nurses seemed in their responses to engage more with the interpretation of measurement values because of unavailability of doctors.

Participants described their interpretation of children’s weight comparing current and previous weight with specific concern for it being up or less than the required measurements, further checking whether it is below two or three or minus three showing undergrowth in a child. Participants used the common concept of “under mass” to describe malnutrition among children. This description shows that the participants do not use the language of GDM or APM such as Z-scores and standard deviation to interpret the values but use blanket concepts such as “under mass”. It raises a concern on the level of knowledge about the practice of GDM and accuracy in interpretation of the values for appropriate diagnosis of faltering growth. According to Saeed (2012:7), WFL Z-score is important in the diagnosis of acute malnutrition in children aged 0-6 months.
It is important for clinic nurses to measure APM accurately, read and record precisely on the relevant charts and interpret values correctly according to the WHO Child Growth Standard. Correct interpretation of GDM and APM is critical to the analysis of the growth faltering and classification of children accordingly for prompt intervention.

### 5.2.5 The role of the clinic nurse in GDM of children

Freshwater and Maslin-Prothero (2005:528) define a role as a way of behaving or social prescription for a person with a specific position in a group. It refers to the kind of behaviour expected of a person because of particular place or position, setting or situation. The role of nursing in King’s theory is important for nurses and patients to participate in goal setting and goal attainment (Geyer et al 2009:15). Peterson and Bredow (2013:211-212) explain different roles played by nurses under stranger, resource person, teacher, leader, surrogate and counsellor who are closely related to the findings in this regard.

Nurses form the largest group of health professionals at the entry level of PHC delivery globally (Meldrum, Prabhu, Bentwich, Orrell, Regensberg, Roux, Barigye Rabkin & Nyazema 2013:1), including SA. In SA, nurses have expertise, competencies and function according to their qualifications and Scope of Practice as determined by the SANC (South Africa 2005). Nurses working in PHC settings are trained on GDM and APM and interpretation of values.

Tasks and duties of different categories of nurses are guided by the scope of practice (R2598) as determined by SANC (South Africa 2005) and job description of each position. Although the basic training of PNs and ENs may not necessarily be able to have had specific content on GDM, APM, EPI, and IMCI as the WHO initiatives in PHC settings, but most clinic nurses undergo regular in-service education, workshops and experience of working with children in this regard.

Most of the clinic nurses are involved as their daily responsibility to primarily practice GDM, APM values of children. However, the findings in this study put emphasis on secondary roles such as teach the mothers, counsel them on nutrition, keep good records, refer where necessary to doctors or dietitians give follow-up dates.
appropriately depending on the outcome of the measurements and the condition of the child.

**Health education**

Health education is a very important strategy in health promotion whereby the community is empowered about how to adopt healthy lifestyle so that they are informed about their health and that of their children (WHO 2014:33). Providing health education to mothers was one of the fundamental tasks that were practiced by participants on daily basis. Nurses in the clinics are most of the time the first point of contact for individuals, families and the community with health care users as mentioned in the PHC definition (Hatting et al 2012:70). In addition, health education is a strategy through which individuals, children and families and communities are enlightened about health-related issues or diseases and health facilities to be accessed. It puts emphasis on health promotion and prevention of illness (Hatting et al 2012:66).

According to the excerpts reported on, it is evident that clinic nurses give health education as the mothers present their children for consultation. More importantly, they teach them mostly about the correct type of food and immunisations (WHO 2014:15, 33). Nevertheless, implementation of the health talks did not seem to have a positive outcome on most of the children who contacted the clinics.

**Nutrition and nutritional supplements**

Bazzano, Potts, Bazzano and Mason’s (2017:1) report on the use of RUTF confirmed that large number of children from six months to five years with uncomplicated SAM benefited during emergencies. The emphasis was to make mothers aware of foods planted in their own gardens as essential to feed their children.

It was evident that participants in their current practice gave nutritional supplements, formula feeds for those under six months and Vitamin A to deworm all children as the mother brings the child to the clinic. This practice is consistent with the guidelines in the IMCI booklet (WHO 2014:33). However, this view as their role is secondary to what impact they need to have in influencing the nutritional challenge that children and their mothers/guardians experience.
The findings of this study refutes those of a study conducted by Kitenge and Govender (2013:277) which revealed a gap in the administration of Vitamin A by the professional nurses in Limpopo. In this study, the administration of Vitamin A was done well.

- **Assessment of malnourishment**

Assessment is the first step in the scientific nursing process that guides nurses in formulating a nursing diagnosis based on the assessment of the patient’s expressed and observed needs according to the North American Nursing Diagnosis Association (NANDA) (De Wit O’Neill 2014:60). The findings on assessment of malnutrition were consistent with the WHO’s (2014:6) report of IMCI that guides nurses on how to check for acute malnutrition. However, in this study the understanding of assessment of malnutrition by the participants was not clear. Specific information on “look and feel” symptoms and signs of acute malnutrition such as oedema of feet, determining the WFH/L Z-score and checking if the WFH/L is less than 3mm did not come forth in the interviews. No mention was made of “RUTF” which meant Ready-to-Use-Therapeutic Food for conducting appetite assessment and feeding children six months and older diagnosed with SAM but without medical complications.

According to the WHO (2014:30), specific steps must be implemented by nurses in the follow-up care of malnutrition through assessment and classification. Uncomplicated severe malnutrition is also assessed for the same measurements of WFH/L, MUAC as for initial visit and oedema of both feet. Appetite should be checked by offering ready-to-use therapeutic food (RUFT) in a child aged six months or older.

**Record keeping**

Record keeping is a critical activity for all that nurses do or not do in their role as they care to patients. This is stipulated in the Scope of Practice such as (R2598) and acts and omissions (R767) of SANC (South Africa 2005). In the context of this study, recording done by participants constituted of a daily logbook, RHC, MUAC, and Percentile BMI chart.
Standards for using RHC in growth monitoring

The use of RHC chart is perceived as a powerful tool for screening growth and development of children 0-5 years in developing countries with a potential to decrease the prevalence of malnutrition. However, the effective use and understanding of the chart is crucial. In the PHC facilities, the RHC based on the 1977 NCHS is used for reference for growth data. Before nurses can use the RHC, the WHO (2013:384) should train then on the use of the newly developed RHC. With the use of this chart, nurses should be able to weigh children accurately and classify them as stunted or wasted or underweight and mothers/guardians should understand the chart and the child’s response (Cloete, Daniels, Jordaan, Derbyshire & Schubi 2013:141; Kitenge & Govender 2013:9).

The participants used and understood the RHC as a guide on how the child grows, as a graph for plotting weight and checking if immunisation is up to date. However, the interpretation regarding the use of the RHC was not well understood. Kitenge and Govender (2012:276) report that nurses do not have the necessary knowledge regarding interpretation of the growth curve and identify malnutrition early based on the RHC.

Use of MUAC chart

The MUAC measurement is consistent with the report in Saeed, Mogendi, Akparibo, and Kolsteren (2015:3) in which it was reported to be easy to use, attractive with a simple tool that required a single cut-off. However, MUAC measured with WH/L in growth monitoring is reported to be good indicators of SAM. However, the reliability of MUAC measurement depends on the measurement being carried out by the same health workers consistently. Mwangome et al (2012:887) report that MUAC was not recommended for infants 0-6 months owing to lack of data reliability in measurement, practice and predictive value for death. However, the reliability of MUAC among infants aged 0-6 months in Kenya was greater than that of WFL/Hz (Mwangome et al 2012:887). The measurement of MUAC was described together with measurement of weight, head circumference and height to assess malnutrition at specified intervals. The MUAC is measured on the patients’ arm at the mid-arm point between the olecranon
and the elbow with the arm relaxed. This measurement is used to identify wasting indicating high risk for SAM (WHO 2014:6).

The reported practice on the use of MUAC chart by participants is supported by the WHO and UNICEF guidelines. The latter is based on the assessment of APM values with consideration of weight-for-age, weight-for-height and MUAC measured from birth to five years in both girls and boys for early detection of severe acute malnutrition (SAM) using Z-scores and standard deviations (WHO, 2013:379; WHO & UNICEF 2009:10). The WHO further recommended weight-for-length (WFL/H) to be represented as a score in current practice for early nursing diagnosis of malnutrition in ages 0 to 60 months (Mwangome et al 2012:887). It is important for the health workers to know how to measure MUAC and also be able to interpret it because it is fast, and effective first line that enables them to identify acute malnutrition (Partners in Health 2013:1).

It was evident from the excerpts that participants used the special colour coded tapes to interpret MUAC measurements with the normal range stated as 13 centimetres. Different nurses measure MUAC in the clinic. However, Saeed (2012:7) reports that the reliability of this measurement is low when many observers are monitoring MUAC. According to the WHO recommendations, WFL/H represented as a Z-score is useful in the diagnosis of malnutrition among children aged 0-60 month old.

- **Percentiles BMI**

According to Kitenge (2011:vi), a percentile is referred to as a number that corresponds to 1 of 100 equal divisions in a range of values which is a measure of relative location. For example, one data-set is divided into 100 equal parts that give a relative position of a person. For instance, a child’s weight could be on the 30th percentile indicating a value that it is below or less than.

According to Wang and Chen (2012:31), the calculation of the BMI percentile is used to interpret measurements by comparing the child’s weight to the height to get the BMI range. The significance of calculating the BMI percentile is to enable the nurses to identify whether the child is failing to thrive or has some illness indicated by the weight below 5th percentile. The weight below or above 95th percentile is indicative of obesity and the weight on or above 85th percentile is indicative of overweight. Obesity refers to
a BMI of 30 or more whereas overweight refers to a BMI of 25-29.9 in relation to the amount of body fat. Calculation of BMI on children helps to optimise the children’s health outcomes.

**Referral**

Nurses form part of the multidisciplinary team that affords children, individuals and families a holistic approach of care through collaboration with the relevant team members. Participants described the task of referral and its implication to their clinical role. Referral of ‘under mass’ children to the dietician depended on the severity of malnutrition for further management as guided by the standards of practice in this regard (WHO 2013:198).

The notion of referring a child according to severity of malnutrition is of concern as participants seemed not to be well versed with how to interpret APM which may lead to under reporting and consequently deterioration of the child's condition. The Government of Western Australia, Department of Health (2014:3) recommends referral of children with growth deviation to appropriate practitioners such as dieticians and doctors for further management.

**5.2.4 Challenges experienced by clinic nurses in the practice of GDM**

Challenges in this study referred to difficult encounters that were faced by the participants regarding GDM. These findings included challenges such as shortage of staff and equipment, shifting of nurses between departments and non-compliance of clinic nurses to established standards of practice and that of mothers.

The findings of a study by Mothiba and Tladi (2016:923) on challenges faced by PNs when implementing the EPI on immunisation at rural clinics in Capricorn District, Limpopo concurs with these study findings about non-compliance of majority of mothers in bringing the RHC to the clinics. Bilal et al (2014:441) report findings on the practices and challenges of growth monitoring and promotion in Ethiopia which found that nurses were aware of the practice of growth monitoring according to international standards. Mothers were also aware of the need for regular weighing of their children. However, they lacked knowledge in relation to buying nutrition rich food, did not understand what
malnutrition was, and also lacked support from their husbands. They thought that GDM is for the benefit of nurses and chose to attend to household matters and social events rather than the health needs of their children. Therefore, based on the study conducted by Bilal et al (2014:441-451) recommendations were made to educate mothers and also to train nurses to improve their skill and knowledge on the importance of GDM and APM values engaging mothers for better outcomes.

Consistent with findings from a study conducted by Kitenge and Govender (2013:275) clinic nurses felt that the most encountered challenges at the clinics was shortage of staff, insufficient supply of vaccines, work overload and lack of equipment. These challenges had a negative impact on the practice of GDM and APM on children. Most of the clinic nurses are stressed out owing to work overload and seem to have no effective support from management or supervisors at the workplace (Kitenge & Govender 2013:278).

From this theme, two categories emerged, namely, shortage of human and material resources and non-compliance by nurses and mothers/guardians.

5.2.4.1 Shortage of resources

In this study, shortage of resources referred to that of nurses and equipment particularly evidenced by attending too many children, with resultant long queues. Parents who came in large numbers from other PHC facilities worsened long queues. This was against the policy of geographical zoning thus increasing the workload of some clinics. Lack of resources in this study referred to scarcity of staff and equipment which are needed for effective practice. Lack of resources related to human and material needed in GDM of children and interpretation of APM values. Participants expressed their frustration with regard to this category as a major challenge for clinic nurses in the PHC setting which is beyond their control. Lack of resources affected growth monitoring measurement and accurate interpretation of values. The above challenge on the lack of resources in growth monitoring and health promotion is consistent with findings of the studies done in Limpopo Province in SA by Kitenge and Govender (2013:279) and in the USA by Bilal et al (2014:441-451) as already alluded to earlier. Owing to lack of resources, some clinic nurses omitted measurements such as the length/height because of lack of tape measures.
Shortage of nurses

Shortage of nurses is a global problem in PHC clinics and hospitals. James (2016:1) laments that nurses are at the front line of health care and yet the South African nation gives them little resources to carry out their duties. The strength of health care delivery system depends upon the nursing performance and expertise. Although the study contexts were rated poor in the ideal clinic evaluation between 2015/16, according to James (2016:1), the health profession in SA has excellent nursing training and as such deserves global recognition for their training and reputation. The challenge of shortage of nurses led to the brain drain owing to the exodus of nurses from the public to private sector for better working conditions. There is an estimated total of 270,437 registered nurses but short of 44,780 PNs and 3,595 ENs according to the SANC (South Africa 2005). The SANC predicts worsening of this situation and compromised care owing to the shortage, especially of PNs.

The constant shifting or rotation of clinic nurses between departments affects continuity of care and mastering of skill such as GDM of children. Based on the findings, some participants were allocated to work among children for only a week with or without training on GDM and APM. The restructuring that matched the movement of people was recommended to deal with overcrowding of patients, particularly in the clinics and hospitals. The clinic nurses expressed their frustration about the constant shifting that made them to forget and miss doing the correct practice on what they learned about GDM. According to current practice in PHC settings, during consultation of children, clinic nurses are expected to attend to the health needs of the mothers simultaneously which expanded the role of the nurses without any addition on staff.

Furthermore, Awases, Bezuidenhout and Roos (2013:20) confirm that factors such as shortage of PNs with enormous workload compared to the available nurses affected quality performance. Therefore, the authors recommended increasing the number of nurses to address the shortage of staff. In this study, increasing staff can positively benefit the clinic nurses to alleviate shortage and improve the quality of their work life including handling workload regarding GDM and APM of children. Mothiba and Tladi (2016:923) concur with recommended employment of more staff to prevent burnout to address the challenge of shortage of professional nurses in rural clinics of Limpopo
Province. Furthermore, the study report by Eugelaar and Stellenberg (2012:1-36) confirm that barriers such as inadequate provision of adequately skilled nurses and doctors, including supplies and consumables, influenced quality of health care in rural district hospitals.

Although Stapleton, Henderson, Creedy, Cooke, Patterson, Alexander, Haywood and Dalton (2015:1-9) agree that staff rotation boosts the morale of nurses which leads to improved performance in the clinical setting, in this study, findings reflect a negative connotation to staff rotation.

In support to the findings of this study on staff rotation or shifting challenge, Nabudere, Asiimwe and Mijumbi (2010:1-3) found that staff shifting was positively implemented in Uganda to address the shortage of health workforce during the provision of anti-retroviral therapy treatment to HIV and AIDS, including management of childhood illnesses. Although task shifting was a strategy to improve shortage and maldistribution of specialised health personnel, it was also perceived positively as a quick fix solution. However, lack of skilled personnel and high demand for service would compromise quality of patient care in the long-term in Uganda.

In this study, some participants raised a concern that regardless of the shortage of clinic nurses, much is expected from them. This was unrealistic and with no forthcoming support. Nurses’ leaders should be cautious of inadequate training and lack of support of nurses and its impact on their job satisfaction. Incentives, pre-training and attending practice needs of unskilled nurses considering flexible schedules and realistic expectations are of great value for the benefit of the child, mother and the nurse. The WHO (2013:1) sends a strong warning to different countries to address the issue of shortage of resources to avoid serious health consequences for particularly children globally.

Mathibe-Neke (2015:14) argues that nurses’ ethical climate is determined by how work-related ethical issues are handled in relation to policies and structural settings of the organisation that impacts on the practice role of the nurse. Nurses who are exposed to an environment of staff shortage with substandard equipment are likely to have moral distress. This leads to their poor moral judgement related to their practice role. Based on the findings, it is revealed that the revitalisation of the role of the nurse also depends
on the revitalisation of the health system in terms of institutional policies and values that address shortage of resources. The former American President, Barack Obama supported these discussions by saying: “America’s nurses are the beating heart of our medical system”.

**Shifting/rotation of nurses between departments**

Rotation refers to alternation or changing staff from one unit to the other such as moving someone from one post to the other and replacing with another. Nurses may be rotated from night shift to day shift or from one department to another or from children to adult departments as a norm in nursing management. Rotation of nurses or changing of nurses constantly in this study had an impact on continuity of care to mother and child as well as child growth monitoring.

Saeed (2014:7) supported the findings in this study about MUAC. The latter author indicates that the MUAC measurement requires same health care workers to perform the MUAC measurement every day. However, they should not be overworked for the measurements to be reliable.

This significant evidence from the findings highlighted the challenges that were associated with the relationship of the nurse with mothers in relation to GDM of children and continuity of care which gets disrupted with the allocation changes. According to Saeed (2012:7), the reliability of MUAC measurement is low when many observers are monitoring it. Therefore, constant shifting/rotation of nurses may have a negative impact on MUAC reliability. In addition, Mijovic, McKnight and English (2016:2083) argue that task shifting is a rational redistribution of tasks among health workforce teams who are moved from highly qualified health workers to health workers with shorter training and fewer qualifications in order to make more efficient use of the available human resources for health.

**Shortage of equipment**

Lack of adequate resources in the PHC settings was revealed in the findings. Examples include tape measures for height/length, lack of measuring board for children less than a year, and BMI tapes including weighing scales. This resulted in omission or
incomplete measurements. Different tape measures were used in each setting to measure height/length as reported by participants who compromised the accuracy of values.

The clinic nurses practice their role in GDM and APM values under conditions with limited resources or none as expressed. Nevertheless, they demonstrated willingness to improvise by bringing their own tape measures from home. However, the use of home tape measures undermines adherence to standards of GDM and APM of children and consistency. However, other participants from another clinic reported that they do not measure height/length and omitted it because they were promised tape measures but to the date of data collection, nothing happened. This raises concern over the use, control of equipment and adherence to standards, policies including protocols that guide clinic nurses in GDM and APM. Accuracy in GDM and APM refer to the use of accurate quality equipment which is regularly calibrated, standardised measurement technique and reliable trained measurers that are precise in their technique (Alberta Health Services 2014:3).

The shortage of such crucial equipment questions consistency of adhering to the standards and also different interpretations of the measurements which creates different results. In their study conducted in the USA, Brandenburg, Gabow, Steele, Toussaint and Tyson (2015:7) found that all the examination rooms in the clinics were standardised to eliminate moving around looking for equipment and supplies. The use of the above-mentioned approach by management in the Tshwane District Health study area might benefit the practice and role of clinic nurses regarding GDM of children.

However, Brandenburg et al (2015:14) raised a concern over adding resources as a quick fix but rather recommended re-scheduling and best practice by clinic nurses as paramount.

5.2.4.2 Non-compliance of mothers and clinic nurses

Non-compliance is defined as failure to comply or refusal to do something (Amboko & Brysiewics 2015:844). Growth assessment of children who are brought to the PHC clinics entails a series of weighing, measurements and interpretation of the values to identify deviation from the norm for prompt intervention. However, for the clinic nurses
to be able to perform their duties according to expected standards, they need mothers to cooperate with them.

**Non-compliance of mothers/guardians**

Non-compliance in honouring scheduled times by mothers in bringing the RHC cards for visits and children for follow-up were reported as challenging.

The findings of a study by Mothiba and Tladi (2016:923) on challenges faced by PNs when implementing the EPI on immunisation at rural clinics in Capricorn District, Limpopo concur with this study finding about non-compliance of majority of mothers in bringing the RHC to the clinics. Furthermore, Jonker and Stellenberg’s (2014:537) study findings in Cape Town on missed opportunities also confirm on the challenge of mothers’ non-compliance in bringing the RHC cards for clinic visits and children for follow-up as scheduled.

Parents who are able to maintain exclusive feeding of breast or formula should be congratulated and supported according to the WHO (De Onis, Blossner, Borghi, Siyam, Bloasnner & Morris 2004:1). The WHO and UNICEF (2016:1) established 10 steps to encourage successful breastfeeding baby friendly hospitals initiative launched in 1991 with further emphasis also on GOBI FFF principles. Best practice in Canada enforces sustainable exclusive breastfeeding from birth to six months or longer for infants and toddlers’ growth and development and their protection from illness. Baby friendly initiatives, policies and practices in hospitals and communities are promoted such as GDM and APM. Mothers are taught what nutrition is and how to feed their children with support regarding gastro-intestinal ailments and how to handle them (Health Canada, 2014: 1).

Kitenge and Govender (2013:275) support this study’s findings stating that in the use of the RTHC implementation the nurses failed to meet the standards and norms of the DoH and Department of Social Development in SA except in giving Vitamin A supplements and deworming.
Jonker and Stellenberg (2014:543) report that non-compliance of hospital obstetrical services to national policies leads to missing opportunities for early identification of growth faltering or illness and early intervention in child health care. In this finding, it was further suggested that urgent research needs to be conducted to determine why hospital obstetrical services do not adhere to national policies and standards for childcare. Missed opportunities by clinic and hospital nurses impacts negatively on the health rights of children to have their growth monitored consistently and deviation from normal growth be identified and interventions implemented early. The Convention on the Rights of the Child (2004:2) supports this notion. The Convention states that people who care for children should bear in mind that, as indicated in the declaration of the rights of a child, “the child, by reason of his physical and mental immaturity, needs special safeguards and care, including appropriate legal protection, before as well as after birth”. Mothers are also denied opportunities for appropriate health education such as nutritional information and referral where necessary.

Health care managers in the PHC settings are accountable for ensuring delivery of integrated health care services to all children who use them. In addition, health care managers should enforce clinic nurses’ adherence to standards and relevant policies for childcare.

**Follow-up**

The challenge that clinic nurses experience is that of non-compliance regarding bringing back children for follow-up which had negative outcomes concerning the growth and nutritional status of the children in this study. The counselling for parents to bring back their children on scheduled follow-up dates was consistent with the IMCI recording form of particularly those suffering from childhood illnesses such as HIV and ante-retroviral treatments (WHO 2014:41).

It is very important that a proper follow-up system be established, monitored and sustained in the PHC structure to ensure continuity of care and prevention of complications especially in children. During the interviews, participants answered the probing questions on this sub-category by stating that they gave mothers weekly or two weekly follow-ups to weigh the child and check the nutritional status based on the counselling given and also depending on the child’s condition (WHO 2014:28).
Non-compliance of clinic nurses to standards, policies and protocols

Non-compliance of clinic nurses with standards, policies and protocols regarding GDM was reported as a major challenge. Although they were aware of the policies guiding their practice in GDM, they deliberately did not comply with these, an act that had a negative impact on their role and health outcomes for the children cared for. Kitenge and Govender (2013:275) supported this study’s findings stating that in the use of the RTHC implementation, the nurses failed to meet the standards and norms of the DoH and Department of Social Development, especially in the giving of Vitamin A supplements and deworming. In this study, the findings were different in that the nurses were good in giving Vitamin A and deworming. Moreover, Vitamin A supplements are essential to complement the nutrition of children in order to prevent night blindness. However, practicing GDM successfully is broader than just giving supplements. Jonker and Stellenberg (2014:543) argue that non-compliance of hospital staff regarding MCH services to national policies on missed opportunities in child health care results in development of unnecessary complications, such as diarrhoea and malnutrition which are preventable. Suggestions were made that more prompt research be conducted to determine why hospital MCH services do not follow national policies and standards for childcare.

Missed opportunities by clinic and hospital nurses impact negatively on the health rights of children to have their growth monitored consistently and deviation from normal growth identified and interventions implemented early. Mothers are also denied opportunities for appropriate health education such as on nutritional information, recording on the progress of their children, appropriate referral, and follow-ups. The report of study findings by Amboko and Brysiewics (2015:844) revealed 80% of non-compliance of nurses in Kinshasa Congo regarding implementation of PMTCT national guidelines on MCH in three services/units. They then recommended the need for effective monitoring of full integration of the programme in MCH and in-service education for clinic nurses. Therefore, there is a need in the PHC settings for revitalisation of the nurses practice role to effectively monitor the full integration of GDM standards over and above their abilities to run the EPI and IMC programmes as routine activities in child development.
Clinic nurses play a crucial key role in the implementation of various initiatives by different stakeholders who care for children.

5.3 LIMITATIONS OF THE STUDY

Although the study can be replicated, the findings in this qualitative study cannot be generalised to other settings or a larger population owing to a small sample size. The researcher prepared for entry, met and arranged with managers as gatekeepers and prospective participants. Nevertheless, the focus group interviews could not be carried out because of the complexity of management programmes and withdrawal of a significant number of eligible participants. Focus groups could have elicited more rich diverse information to address the research question and the objectives comprehensively and adequately. However, the participants have the right to self-determination and that was respected and observed with re-assurance to the clinic nurses that they have the right to withdraw without interference with their work in any way or form. The study was also solely limited to four research sites and findings might not reflect the situation to the rest of the PHC settings across the country. The three clinics and the hospital that were chosen by the researcher were restricted to one urban township where all of them were located. The clinic capacity for children’s attendance from January until August 2017 are illustrated in chapter 3 (see Table 3.2); the nursing compliment in chapter 3 (see Table 3.1). Only five PNs and seven ENs participated in (one PN and four ENs from the hospital) and four PNs, including three ENs from the clinics.

5.4 CONTRIBUTIONS OF THE STUDY

This study has come up with important findings that have implications to the clinic nurses and others at different levels. These include clinic managers, coordinators and planners of clinic programmes, policy-makers and other service providers in PHC as evidence base on which guidelines were formulated or on which to focus the practice role of clinic nurses to improve GDM for children. The identified overall poor adequacy of the practice of GDM for children by clinic nurses, inconsistencies, discrepancies and inaccurate interpretation of APM values were highlighted as having dire consequences in identifying faltering growth of children. This is implicit information that has been
revealed by the findings, including ignored and overlooked routine practice that was not questioned. The findings also created awareness of non-compliance of clinic nurses to the new growth charts standards developed by the WHO for GDM with benefits for them, children and the mothers.

These inputs were used for formulation of appropriate guidelines for support measures to reach clinic nurses with needed information to empower them. Low content or poor responses on how GDM is practiced in the clinics indicated where the clinic nurses, their trainers and managers have to concentrate on to optimally meet the health needs of children and save their lives. The findings have also shown gaps that should be addressed in future research using quantitative research on the study construct with large samples.

5.5 DISSEMINATION OF FINDINGS

Findings from this study will be disseminated by writing and submitting articles for publication in accredited journals, presentation of research papers and posters at local, national and international conferences, in-service education, and seminars for the clinic nurses and testing of the guidelines at the PHC settings of Tshwane, Gauteng Province or other similar settings. Furthermore, information will be disseminated through radio talks, media interviews, role plays, songs, writing of policy brief for the DoH in South Africa, development of application or text messages of for mothers and/or nurses.

5.6 REFLECTIONS ON THE RESEARCH JOURNEY

I come from a quantitative background. Moreover, conducting this qualitative exploratory, descriptive and contextual study on the role and practice of clinic nurses regarding GDM and APM of children and interpretation of the values in the PHC clinic settings and a hospital was a very humbling and challenging journey. I had intensive learning and studying to do. However, this experience yielded discovering and learning qualitative research skills including conversations during interviews the qualitative way which was a big lesson for me. I learned to apply the “bracketing” concept with great discipline to discover rich knowledge about the study construct without contaminating the findings because it is my area of experience and interest.
Gaining entry and getting cooperation from one deputy manager was very difficult even after the senior manager had given me permission to conduct research in the specific setting. This manager allocated an open area where there were many people passing by and making noise. It took more explaining about the need for privacy and tranquillity, which was finally granted. Perseverance and humility made the resistant manager understand and cooperate. The clinic nurses were willing to participate in research amidst the challenges that they were experiencing, such as shortage of staff, absenteeism and some were sick. Some during the interviews used the platform to vent out their frustrations and wanted to make their voice heard from the original grassroots level which will always be respected. These sessions made room for raising the awareness of the need for opportunities to have their voice and frustrations heard and attended to by appropriate authorities.

It was very disappointing though not to be able to have focus groups especially after a very long tedious process to obtain consent and gain entry. However, this was legitimate reason as nurses were short staffed and very busy with long queues of mothers and children. Shortages were real and I actually felt like taking off my research hat, get into the consulting rooms, and give a helping hand.

5.7 RECOMMENDATIONS

The recommendations made included education, advocacy at national and local government. In addition, the recommendations were indicated as clinical practice, nursing education and further research. Based on the findings, the following main recommendations have been made as an attempt to narrow the identified challenges. These recommendations are consistent with the recommended standards of the WHO for monitoring of growth of children with reference to the revitalisation of the practice role of the clinic nurse. They are as follows:

- Empower recipients (clinic nurses) through re-enforcement of existing workshops, in-service education programmes on GDM of children to enhance accuracy, consistency in measurements and precise reading and plotting of weight, height/length, MUAC and to foster appropriateness in interpretation of BMI, percentile curves weight-for-age and weight-for-height to help them build insight and master correct interpretation skill
• Enable the clinic nurse to identify growth faltering indicated by stunted growth, wasting, underweight and oedema of the feet appropriately using SD and Z scores to help them with correct reading and recording of measurements without missing anything in GDM and APM values

• Clinic nurses to serve on the decision-making bodies in the community to allow them a voice on the revitalisation of their practice and role regarding GDM of children in the PHC of Tshwane, Gauteng Province

• The proposed guidelines should have room to be tested at grass root level or context where the study was conducted or other similar settings. This should be done with the intent to revitalise the practice role of clinic nurses regarding GDM of children through workshops, in-service education and seminars

• Daily tests and inspection of equipment to identify good functioning equipment, ordering of new equipment, those that need repairs, and redundant ones for replacement to avert the use on sub-standard equipment or lack of reliable equipment in the practice of GDM of children

• Compulsory dissemination of health information to mothers about care of children by monitoring their growth and development through television and radio programmes, song, drama, and short message service (SMS)

• Clinic nurses to make contributions in the development or revision of policies regarding their rotation/shifting between departments for the purpose of adjustment to the revised standards of GDM and APM values of children

• Develop strategies to motivate and educate mothers by giving them knowledge on nutrition, importance of attending scheduled appointments for referral and follow-ups for proper monitoring of the growth of their children and prevention of SAM

• Clinic nurses to participate in campaigns, roadshows with regard to growth and development of children, equipping mothers, parents, caregivers, and guardians with knowledge regarding malnutrition and its consequences

• Data capturing information system needs to be revitalised to avoid duplication of writing files which waste nurses’ time that can be used for patient care

• Clinic nurses to be empowered on the importance of psychomotor, cognitive and affective skills regarding GDM, promote reflection on own self and on their role and practice.
The South African Government needs to establish a community-based growth development monitoring and nutrition information centre. This should be done on a rotational basis clinic nurse, where students from colleges and universities in the health care faculties get practical training on GDM of measurements and interpretation of the values from experts. This initiative could also empower and serve the community by nurses in identifying their strength to get involved as active partners in the care of children for effectively sustaining child growth monitoring and identifying growth faltering for early intervention. Implementation of this initiative might relieve the shortage and workload from clinic nurses.

5.8 CONCLUSION

Chapter 6 entailed the description of discussions, limitations, dissemination of findings, contribution of the study, reflections on the research journey, and recommendations. Discussions were based on the key findings which were on inconsistencies, discrepancies and accuracy in applying the standards for GDM of children, practice and role of clinic nurses, shortage of resources, and non-compliance by both nurses and mothers. Recommendations were made based on the findings giving clinic nurses a way forward on the revitalisation of their practice role. The major limitations of the study were that the sample size was small and the study could not be generalised to other settings or larger populations. The researcher presented a reflection on the experience of how the journey of conducting the study was undertaken and challenges experienced. Chapter 6 focuses on the development of guidelines.
CHAPTER 6

DEVELOPMENT AND PRESENTATION OF GUIDELINES FOR PRACTICE REVITALISATION OF THE ROLE OF THE CLINIC NURSE REGARDING GROWTH DEVELOPMENT MONITORING OF CHILDREN

6.1 INTRODUCTION

This chapter is based on the process and method followed to develop and validate guidelines for practice revitalisation of the role of the clinic nurse regarding GDM and APM of children and related challenges. The final objective was reached when the guidelines were developed based on the findings and validated by experts using the Delphi technique, supervision by study promoters and by participants through member checking against the ethical standards of the academic institution.

6.2 DEFINITION OF GUIDELINES

The WHO (2014:1) defines guidelines as documents that are developed based on the recommendations for clinical practice or public health policy. They are fundamental means through which organisations fulfil their technical leadership in health. Recommendations for the guidelines are intended to give end-users clear guide of what could and should be done in specific situations to achieve the best health outcomes possible for individuals or groups regarding priority, selection and use of resources. In addition, Schünemann, Gent, Ahmed and Morgan (2011:7) define guidelines as recommendations intended to assist providers and recipients of health care and other stakeholders to make informed decisions. These recommendations could be related to clinical interventions, public health activities or government policies (ibid).

In this study, guidelines were developed from the findings, conclusions made including current literature on the study phenomena and some of the elements of Wentzel’s (2008) PHC model based on Donabedian’s model (1988) as exhibited in Figure 1.2. Therefore, guidelines in this study are standards, rules and advice to be followed by the clinic.
nurses regarding GDM role and practice for accurate, effective APM values precise reading and interpretation of the values. This process was also guided by the WHO (2013: 384) child growth charts to identify growth faltering early and prevent malnutrition by identifying indicators such as stunting, underweight and wasting, for early and appropriate nursing diagnosis and intervention.

6.2.1 Characteristics of guidelines

The criteria for guideline development considered the following characteristics:

“Purpose; scope; point at which guideline is developed relative to the span of intervention; the organisations or entities developing guideline; the presence in the guideline of new versus previously published recommendations and the timeline” (WHO, 2014:3).

In this study, guideline formulation or development considered types of guidelines, principles of developing them, target group, purpose, method used, and the process of guideline formulation.

6.2.2 Types of guidelines

According to the WHO (2014:1), uncertainties regarding what to do or how to make a choice from among a range of potential policies or interventions may trigger the need for guidelines. Such uncertainties may arise from the uncovering of new evidence, lack of quality evidence, no evidence at all or change in resources and access to services as is the case in this study. There are four main types of guidelines which can be developed based on the required characteristics, namely, standard, consolidated and interim guidelines as well as guidelines produced in response to an urgent need (WHO 2014:3). However, in this study standard guidelines were developed.

6.2.2.1 Standard guidelines

In this study, standard guidelines were intended to cover a clinical policy area such as the role and practice of the clinic nurse regarding GDM and APM and interpretation of
values to improve safe quality care among children. These guidelines differed in scope and focus and they may address health care challenges affecting childcare.

The standard guideline was used to update previous guidelines on the role of the clinic nurses and how they currently practice GDM and APM interpretation of their values among children and related challenges. The standard guideline sought to reinforce appropriate use of the new WHO child growth standards, policies and protocols in relation to GDM measurements of children younger than five years. This was done to identify growth faltering early with prompt intervention for promotion of optimal growth development. In addition, this was intended to build the capacity of the clinic nurses in monitoring growth and development. UNICEF concurs with current assessment of growth monitoring and promotion practices in health facilities, to develop standard procedures and resources that could improve optimal growth monitoring of children, empowering staff and giving support to mothers and caregivers (UNICEF 2013:1). There were two types of target groups that were intended as consumers of the guidelines. The target groups for the guidelines were the clinic nurses in three clinics, one hospital clinic and children and mothers catered for including managers, clinic coordinators and community workers in the PHC settings of Tshwane Health District, Gauteng Province.

6.2.3 Principles for the development of guidelines

The following principles (WHO 2014:2) were considered when developing the guidelines:

- They addressed an area of uncertainty and unmet need for guidance on how the role and practice of clinic nurses can be revitalised. They reflected the core value of the “right to health” for children who consult at the clinics.
- The process of developing recommendations for implementation of guidelines was explicit and transparent such that the user can see how and why a recommendation was developed, by whom and on what basis.
- The process of developing guidelines used a multidisciplinary approach by firstly utilising the findings and included inputs from stakeholders and experts on the field of research including literature.
- The processes used in each step of guideline development aimed to minimise bias in recommendations by utilising the study findings.
• Recommendations were based on a systematic and comprehensive assessment of the balance of policy or intervention’s potential benefits and harms and explicit consideration of other relevant factors in relation to childcare.
• The evidence used to develop guidelines will be made available to the public through the research report that will be available at the library, research articles for publication in journals of like-minded scholars.
• Recommendations made can be implemented in and adapted to, local clinics and hospitals and other related settings and contexts.
• These guidelines were tailored for clinic nurses to guide them, public health policy makers, health programme managers, other health care-providers and other stakeholders (WHO 2014:2).
• The elements of Wentzel's (2008:29-33) PHC model were useful in the development of recommendations from the perspective of the micro and market environment to discuss the guidelines in context.
• Donabedian's model (1988) as cited in Nicholson (2008:45-47) was utilised from the perspective of structure, process and outcome to develop the rationale, activities (process), and outcomes.

6.2.4 Target group

Target groups for whom guidelines are intended in the health care arena are generally for public health policy makers, health programme managers, health care-providers, patients, caregivers, the general public and other stakeholders (WHO, 2014:2). However, in this study, they are tailored for the primary and secondary groups as users of the guidelines or beneficiaries as evidenced on Figure 6.1.
Figure 6.1 Primary and secondary target groups

The guidelines formulated in this study were primarily tailored and directed to the clinic nurses whose primary role and current practice is to monitor the growth and development among children and their mothers. Secondary recipients included clinic managers, clinic coordinators, community health care workers, and other stakeholders. Managers and coordinators of clinic nurses included community volunteers who did follow-up to the homes of defaulting mothers.

Criteria that were followed in developing the guidelines included clarity, simplicity, specificity, applicability, flexibility, achievability, and validity (Annexure G).

6.2.5 Purpose for the development of guidelines

The purpose of this study was to explore and describe how clinic nurses practice their role regarding GDM and APM of children and interpretation of their values and related challenges in the PHC setting. This is in order to utilise the findings to develop guidelines for revitalisation of the practice role of nurses in the clinics.
The purpose of developing these guidelines was therefore to:

- Empower recipients through workshops and training to enhance accuracy, consistency in measurements, and precise reading of weight, height/length, MUAC and to foster appropriateness in interpretation of values such as BMI, percentile curves weight-for-age, weight-for-height and precise reading and plotting of weight
- Enable the clinic nurse to identify growth faltering indicated by stunting growth, wasting and underweight appropriately also using SD and Z-scores and reinforce correct interpretation of the values such as WA, WH, MUAC, BMI, percentiles appropriately
- Foster appropriate use of standards, policies and protocol by the clinic nurses in relation to recording, health education on to parents regarding proper feeding and management of children, referrals and follow-ups
- Provide a framework for examining the quality of health care in the PHC clinics about how structures, processes and outcome influence it and address related challenges
- Provide evidence for the revitalisation of the role and practice of the clinic nurse regarding GDM and related challenges in view of the macro, market and micro environment in the PHC settings.

Collaborate the need to promote reflection on own self and on their role and practice to use cognitive skill for decision making and problem solving, affective skill for empathy and in their interaction with parents and children during GDM.

6.3 METHOD FOLLOWED TO FORMULATE THE GUIDELINES

Guidelines of this study were drafted following the WHO (2014:1) handbook for guidelines development suggested format for best clinical practice. They were sent to five relevant experts for formal quality appraisal and feedback using set criteria (see Annexure G). A decision was taken for adoption and/or adaptation of best practice recommendations for clinic nurses, and a pilot implementation testing of the guidelines will be suggested at the study context.
6.3.1 Context inductive reasoning

Inductive reasoning is described as a process of reasoning from specific and concrete observation to more general theoretical explanations (Grove et al 2013:696). Observations that were made in this study from specific instances of the data were used to draw conclusions about the entire project. A sample was observed and conclusions made about the population from which the sample was drawn. Context inductive reasoning was used to draw concluding statements from the findings which provided guidance on the rationale under each guideline formulated (Delport & De Vos 2013:49; Polit & Beck 2012:1).

6.4 FORMULATION OF GUIDELINES

The guidelines presented here are a synthesis of guidelines developed by the researcher from the summary of conclusion statements of Phase 3 of the study and enriched by the information from the meetings with participants. The guidelines were primarily based on the challenges evidenced from the themes, categories that emerged and meaning units which were the verbatim quotes from the participants.

Subcategory 1.1.2: Inconsistencies and discrepancies in practice

GUIDELINE1: Provide guidance on how the role and practice of clinic nurses can be revitalised to conduct accurate, consistent and precise GDM and APM of children and interpretation of values.

Rationale for implementation of the guideline

To ensure that the clinic nurse practice of GD measurements are accurate, consistent including plotting and reading of their values appropriately using set standards and protocols.

Activities for implementation of the guideline

- Clinic nurses are to reflect on their role and practice regarding GDM among children in order to identify inconsistencies for remedial actions and aim to improve quality of their care.
• Practice accurate and consistent measurements of weight, height/length MUAC, head circumference, and BMI with effective use of measuring equipment for AP/AM measurements and precisely plotting measurements on the appropriate, validated chart.
• Appropriate recording and interpretation of values to identify growth faltering which may be indicated by wasting, underweight and stunting as indicators of malnutrition.
• Compliance with the WHO’s new growth charts standards, policies and protocols and their appropriate application on day-to-day care for children.
• Use of cognitive skill to proficiently make decisions and solve problems, related to procedures and practice in GDM during interaction with children and their mothers.
• Attend training in GDM, AP, IMCI and EPI programme through workshops and in-service education.

Outcomes

Reinforced application of knowledge and skill in the practice of the clinic nurse through continual in-service monitoring and direct supervision by training coordinators in the PHC setting regarding GDM and AP measurements

• Sub-category 2.1.1: Accuracy, correctness and precision in the interpretation of GDM and AP values

GUIDELINE 2: Foster correct interpretation and recording of GDM measurement values according to the set standards, charts, policies, and protocols

Rationale for implementation of the guideline

• To ensure precise interpretation of values using standard charts, policies and protocols and accurate recording of GDM measurements to identify faltering growth early for prompt intervention.
Recommendations for implementation of the guideline

- Adhere to the correct use and application of current rules, charts, records, and standards of the WHO guidelines to correctly interpret APM values using Z-scores and SD.
- Revitalise the clinic nurses' knowledge, skill and values with regard to GDM to improve the quality of care for children.
- Refine proficiency on how to interpret values in order to identify indicators of malnutrition such as wasting, stunting and underweight with relevant features of "look and feel".

Outcome

- Correct interpretation of GDM and APM measurement values, SD, recording according to the WHO standards and charts, percentile BMI ranges, MUAC chart and RHC chart and their significance for proper intervention.

Sub-category 4.2.2: Non-compliance of clinic nurses to standards, policies and protocols

GUIDELINE 3: Encourage compliance to the standards, policies and protocol for consistent, accurate and effective practice in weighing of small children as a critical practice in GDM

Rationale for implementation of the guideline

- To ensure compliance with the standards, policies and protocol of weighing small children consistently, accurately and effectively using the correct equipment for GDM purposes.

Activities for implementation of the guideline

- Consistently apply all the standards, policies and protocols regarding GDM of children with support from the managers and good supervision.
• Correct weighing of children without clothes, without compromise of this standard for better diagnosis of faltering growth and nutritional status with resultant acceptable health outcomes.
• Conduct concurrent and retrospective auditing of records including interviewing mothers to ensure compliance and correction of identified errors when weighing children.

Outcome

• Improved early identification of faltering growth of children with prompt intervention to prevent SAM and its complications.

Sub-category 4.2.1: Non-compliance of mothers

GUIDELINE 4: Foster responsibility for mothers to adhere to follow-up schedules for consistency on the quality of GDM for their children

Rationale for implementation of the guideline

• To empower mothers to see the value of adherence to follow-up visits and improve compliance to health education teaching concerning optimal growth and development of their children as partners.

Activities for implementation of the guideline

• Equip the mothers with knowledge and skills of monitoring the growth and development of their children. Their importance of realising their role because they are with their children all the time and they should be able to notice and report any change in the condition of the child.
• Increase parental awareness and knowledge about GDM by giving the key message about the importance of RCH cards, GDM parenting strategies and health promotion which are crucial for the child’s optimal growth (Government of Western Australia Department of Health 2014:78).
• Give relevant health education about parental role in complying with follow-up regime.
• Involve the mothers as partners in the nursing care plans about the care of their children to achieve the best sustainable health outcomes out of the process.

Outcome

• Improved quality of health education and counselling given by the clinic nurse to mothers with better cooperation

Subcategory 3.1.2: Nutrition and nutritional supplements

GUIDELINE 5: Provide training and supervision for mothers as partners regarding proper nutrition to their children.

Rationale for the implementation of the guideline

• To improve knowledge, compliance and a sense of responsibility of mothers regarding proper feeding of their children. According to the Government of Western Australia Department of Health (2014:79), family plays an important role in promoting healthy growth outcomes for children. In spite of the many growth patterns that affect the child’s capacity to achieve optimal growth, clinic nurses working with families could use timing and combination of strategies and strengths in the prevention of stunted growth or early intervention when there is deviation from the norm.

Activities for the implementation of the guideline

• Use and refer to the IMCI booklet concerning nutrition in children.
• Implement health promotion programs pertaining to feeding of children under five years through community nutrition campaigns.
• Develop a good working partnership and relationship between the clinic nurses and families in order to co-jointly identify poor feeding practices that lead to malnutrition and the need for prompt intervention thus contributing positively to the best outcome of care especially with regard to the GDM of the child.
• Teach mothers how to grow vegetable gardens in their homes using laundry water where there is water scarcity so that they could always have fresh vegetables to feed their children with.

• Involve dieticians to present health talks through workshops about proper feeding of children in early intervention and prevention of malnutrition and to promote healthy growth and development.

• Participate in government-established initiatives such as community-based GDM and nutrition information centres that serve to identify malnutrition early, for prompt intervention and sustainable process with community involvement especially in schools.

**Outcome**

• Clinic nurses to educate mothers who are part of the family and the community with appropriate knowledge skill and about proper feeding of children in their interaction process regarding GDM as a way of early intervention and preventive care.

**Category 4.1: Shortage of resources**

**GUIDELINE 6: Motivate for supply of adequate equipment and material resources**

**Rationale for the implementation of the guideline**

• To enhance the best practice of GDM among children by clinic nurses with adequate equipment that is reliable and in good condition for accuracy in measurements.

**Activities for the implementation of the guideline**

• Clinic nurses to plan and write memos for future provision of equipment, improve procurement practices, purchase and replace material resources such as baby weighing scales and scales for children over two years mounted with height reading calibrated devices, BMI and MUAC measuring devices/tapes.
• Practice good control through constant reliable inventory and maintenance to sustain the use of these material resources for preventive care in a cost effective manner and for the sustainability.
• Advocate for enough supply of appropriate growth charts, immunisation charts and vaccines, percentile charts, RHC and IMCI booklets and all validated recording documents for GDM.

Outcome

• Adequate provision of needed material resources to minimise a risk of omission and the missing of faltering growth among children due to scarcity or use of faulty equipment.

The view of this guidelines are supported by the Department of Health Government of West Australia (2014:2) regarding the importance of accuracy in monitoring and interpreting growth assessment by clinic nurses to identify any deviation from the norm in order to intervene and give support.

6.5 CONCLUDING STATEMENTS

In conclusion, these guidelines form a supportive culture of collaboration and facilitation of training and monitoring in the revitalisation of the current role and practice of the clinic nurse regarding GDM and APM and interpretation of values and related challenges. The guidelines should improve the quality of care in relation to structures, processes and yield outcomes that will improve the quality of childcare in the clinics. Although the major construct of the study was about the revitalisation of the practice role of clinic nurse regarding GDM, the findings revealed more of structural and process-related challenges. These challenges impact on the desired role and practice of clinic nurses in GDM of children and interpretation of values for quality health outcomes more than any of the factors related to their practice.

The rationale referred to the goals intended to be achieved by the implementation of the guidelines.
Recommended activities in this study were based on the findings and the international global standards of the WHO as adopted for use in SA in relation to GDM practice by the clinic nurses among children and were contextually adapted to the local PHC settings.

Outcomes in this study reflected the results of the process of childcare in relation with the set goals involving the clinic nurse as a caregiver and the mothers of children as partners. The quality in outcomes of care sought to assess whether the set goals of care and health status were achieved (Haj, Lamrini & Rais 2013:21).

In support of this finding, Mathibe-Neke (2015:14-15) argues that nurses’ ethical climate is determined by how work-related ethical issues are handled in relation to policies and structural settings of the organisation. Nurses who are exposed to the environment of staff shortage with substandard equipment are likely to have moral distress which leads to their poor moral judgement related to their practice.

6.6 CONCLUSION

This chapter comprised the guidelines for revitalisation of the current practice role of the clinic nurse regarding GDM and APM and interpretation of the values and the related challenges. The guidelines were aimed at empowerment of the clinic nurses including mothers of children (recipients) brought to the clinic for GDM and the managers or facilitators and trainers (agent) on the revitalisation process.


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Sefolo, MM. 2013. Correspondence. 15 April, Pretoria.


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ANNEXURE : A ETHICAL CLEARANCE

Approval from the University (Ethical Clearance)

DEPARTMENT OF HEALTH STUDIES

UNIVERSITY OF SOUTH AFRICA Health Studies
Higher Degrees Committee College of
Human Sciences
ETHICAL CLEARANCE CERTIFICATE

HSHDC/83/2012

Date: 29 August 2012      Student No: 0641-101-0

Project Title: Practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province

Researcher: MJ Black

Degree: D Litt et Phil      Code: DPCHS04
Supervisor:
• Qualification: Joint Supervisor:

DECISION OF COMMITTEE

Approved    conditionally Approved

Prof L Roets
CHAIRPERSON: HEALTH STUDIES HIGHER DEGREES COMMITTEE

LV Monareng
D Litt et Phil
Dr MC Matlakala

Dr MM Moleki
ACTING ACADEMIC CHAIRPERSON:

PLEASE QUOTE THE PROJECT NUMBER IN ALL ENQUIRES
REQUEST FOR PERMISSION TO CONDUCT A RESEARCH STUDY

Dear Mr Motsamai

My name is Mrs Morongwa Johanna Black, I am nurse, a health professional working at the University of Limpopo (Medunsa) as a lecturer. I hereby request permission to conduct a research study in the Ga-Rankuwa municipality early 2012. I am a registered student at Unisa (6411010) for a doctoral thesis.

The topic title is: Experiences of Primary health care Nurses (PHCNs) regarding their role in monitoring child growth and development. The research protocol and the clearance Certificate will be submitted after approval. The aim of the study is to determine the role of the primary health care nurse practitioners in relation to children’s health growth and development. My target group for participation is aimed at: Primary Health Care Nurses (PHCNs) who are working at the hospital and, local well baby clinics. Participants will be interviewed and engaged in interview and focus groups, and interviews will be conducted with integrity and the participant’s privacy safety and confidentiality will be assured.

Information divulged will be kept confidential. Participants who wish to withdraw from the study will to do so without any questions. Herewith find enclosed the informed consent.

Yours faithfully Mrs MJ Black

Tel: (w) 012 521 3820 /Cell: 083 585 1965

Email: elshaddai@absamail.co.za or joanblack@u.ac.za
To: Ms M.J. Black
UNISA

Date: 02/05/2014

PERMISSION TO CONDUCT RESEARCH

The Dr. George Mukhari Academic Hospital hereby grants you permission to conduct research “Practice revitalization of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province”.

This permission is granted subject to the following conditions:

☐ That you obtain Ethical Clearance from the Human Research Ethics Committee of the relevant University

☐ That the Hospital incurs no cost in the course of your research

☐ That access to the staff and patients at the Dr George Mukhari Hospital will not interrupt the daily provision of services.

☐ That prior to conducting the research you will liaise with the supervisors of the relevant sections to introduce yourself (with this letter) and to make arrangements with them in a manner that is convenient to the sections.

Yours sincerely

DR PSHEMBE
DIRECTOR: CLINICAL SERVICES

Dr George Mukhari Academic Hospital
MEOUNSA Drive
PRETORIA 0001

Private Bag
X422
PRETORIA 0001
TSHWANE RESEARCH COMMITTEE
CLEARANCE CERTIFICATE

Meeting: N/A
PROJECT NUMBER: 28/2014

Title: Practice revitalization of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province

Researcher: Morongwa Johanna Black
Supervisor: Prof. L.V. Monareng
Department: Faculty of Health Sciences

DECISION OF THE COMMITTEE

Approved

NB: THIS OFFICE REQUESTED A FULL REPORT ON THE OUTCOME OF THE RESEARCH DONE

Date: 24 June 2014
Chairperson Tshwane Research Committee
Tshwane District

Date:

NOTE: Resubmission of the protocol by researchers is required if there is departure from the protocol procedures as approved by the committee.
Dear participant

Introduction

I invite you to participate in a research study. This information leaflet will help you to decide if you may consent to participate or not. Before you agree you should fully understand what is involved.

Nature and purpose of the study

This is qualitative, exploratory, descriptive and contextual study, whose purpose is to describe the current practice role of PHCNs regarding growth and development monitoring, anthropometry interpretation of their values among children, for early detection of malnutrition in the PHC setting of Tshwane, Gauteng Province. The main aim is to develop guidelines for revitilisation of the practice role.

Explanation of the procedure to be followed

This study involves individual and focus group interviews and the use of a digital voice recorder.

You will be asked to describe your experience in the practice role regarding the growth and development monitoring, anthropometry interpretation of their values among children.
Risk and discomfort involved

There is no risk involved in the study. If you agree to participate, you will be interviewed individually or in a group of six to fifteen. You will be asked to describe your practice role regarding the growth and development monitoring interpretation of their values among children. However, in case of emotional discomfort, an experienced counsellor will be organised on standby in case there is a need for counselling or emotional support for the participants.

Possible benefits of the study

Although you will not benefit immediately, the research findings will provide data that will contribute to long term benefits. The purpose of the study is to develop guidelines that will contribute towards revitalisation of the PHCNs’ practice role and improve quality of child care delivery in the PHC settings. Your participation is voluntary. No compensation will be given for your participation.

What are your rights as a participant?

Your participation is entirely voluntary. You can refuse to participate or stop at any time during the interview without giving any reason if you feel uncomfortable. Your withdrawal from the study at any stage will not affect your work or category in any way.

Contact

The contact person for the study is Morongwa Johanna Black. If you have any questions about the study she can be contacted on 0835851965 or 012 7031858. The study promoters are Prof L.V. Monareng who can be contacted at monarlv@unisa.ac.za and Prof MM Matlakala can be contacted at matlamc@unisa.ac.za.

Confidentiality

All information that you give will be kept strictly confidential. Once the information is analysed no one will be able to identify you. Research reports and articles in scientific journals will not include any information that will identify you or your health care facility instead codes will be used.

Your help will be sincerely appreciated.
INFORMED CONSENT FOR PARTICIPANTS

Dear research participants: CONSENT TO PARTICIPATE IN A STUDY

I am a PhD student with the University of South Africa (UNISA), student number: 6411010. I am conducting a research study titled: Practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province.

The main aim of the study is to explore and describe the current practice role of PHCNs regarding growth and development monitoring, anthropometry interpretation of the values among children, for early detection of malnutrition in the PHC setting and to develop guidelines for revitilisation of the practice role. To complete the study I need to conduct individual as well as focus group interviews with PHCNs. The interview will include digital voice recording for verification of findings and anonymity will be maintained by not using names and places. There is no material benefit for participants in the study. It is an opportunity for PHCNs to share their practice role regarding growth and development monitoring, anthropometry interpretation of values among children and the related challenges in the PHC setting.

Should you wish to contact the researcher for enquiries, you are welcome to do so at the following address: Mrs M. J. Black. P.O Box 911 2569 Rosslyn 0200 Cell: 0835851965 email: johannablack29@gmail.com. The study promoters are Prof L.V. Monareng who can be contacted at monarlv@unisa.ac.za and Prof MM Matlakala can be contacted at matlamc@unisa.ac.za.

I hereby voluntarily give consent to participate in the study. An explanation about the study: Practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province has been given to me.
I understand that my identity will not be made known, all information shared will be kept confidential and that I may withdraw to participate in the study anytime I so wish.

CONSENT FROM FOR FOCUS GROUP PARTICIPANTS

Dear research participants: CONSENT TO PARTICIPATE IN A STUDY

I AM A PhD student with the University of South Africa (UNISA), student number: 6411010. I am conducting a research study titled: Practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province.

The main aim of the study is to explore and describe the current practice role of PHCNs regarding growth and development monitoring, anthropometry interpretation of the values among children, for early detection of malnutrition in the PHC setting and to develop guidelines for revitilisation of the practice role. To complete the study I need to conduct individual as well as focus group interviews with PHCNs. The interview will include digital voice recording for verification of findings and anonymity will be maintained by not using names and places. There is no material benefit for participants in the study. It is an opportunity for PHCNs to share their practice role regarding growth and development monitoring, anthropometry interpretation of values among children and the related challenges in the PHC setting.

Should you wish to contact the researcher for enquiries, you are welcome to do so at the following address: Mrs M. J. Black. P.O Box 911 2569 Rosslyn 0200 Cell: 0835851965 email: johannablack29@gmail.com. The study promoters are Prof L.V. Monareng who can be contacted at monarlv@unisa.ac.za and Prof MM Matlakala can be contacted at matlamc@unisa.ac.za.

I ..................................................... hereby voluntarily give consent to participate in the study. An explanation about the study: Practice revitalisation of the role of the clinic nurse regarding growth and development monitoring of children in the primary health care settings in Tshwane, Gauteng Province has been given to me.
I understand that my identity will not be made known, all information shared will be kept confidential and that I may withdraw to participate in the study anytime I so wish.

Signature of participants:

1. ................................................
2. ................................................
3. ................................................
4. ................................................
5. ................................................
6. ................................................
7. ................................................
8. ................................................
9. ................................................
10. ............................................... 
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12. ............................................... 
13. ............................................... 
14. ............................................... 
15. ............................................... 

Date: ............................................

I have explained this research study to the above participant and have sought her/his understanding for informed consent.

Signature of researcher : ............................................

Date : ............................................

Signature of counsellor: ............................................

Transcript of pre-test interview

Participant code = A

Date: 03/07/2015

Time: 09h30 –

Interview on digital recorder 17

Gender: Female
Category: enrolled nurse

ANNEXURE E: INTERVIEW GUIDE

Individual interview Grand tour question

WHAT ARE YOUR EXPERIENCES REGARDING YOUR ROLE OF MONITORING CHILD GROWTH AND DEVELOPMENT IN YOUR WORK PLACE?

Other questions will be probing and follow up which will emanate from the participants’ responses.

FOCUS GROUP

The following research questions are regarded as relevant to ask in the focus group:

- What are the basic growth and developmental needs of children addressed by PHCNs?
- What kind of challenges or problems is faced by PHCNs in the course of executing their professional duties?
- How do PHCNs perceive the care, support and treatment they give in relation to child growth and development?
- What is the general state of the understanding of child health and development in the Ga-Rankuwa area by practicing PHCNs?

THANK YOU
Annexure F: Transcript

Establishing rapport

**Researcher:** Good morning mam. I am Mrs. Black Johanna a student from the University of South Africa. I am glad that you read the participant leaflet identifying that there are no risks and no immediate benefits and recognise that you can withdraw anytime during the interview if you so wish. Thank you very much for allowing me to interview you. (Uhmm) May you kindly tell me how old you are?

**Participant:** I am 34 years old

**Researcher:** And how many years of experience did you have in the clinic?

**Participant:** 5 years

**Researcher:** And during that experience how (eh) long did you work with children

**Participant:** I can say 4 years

**Researcher:** Okay thank you very much, (eh) tell me more about (eh) how you practice and assess the growth and development of our children and in that practice what is your role specifically?

**Participant:** Ok (uhmm) for the growth and development of children, when they come at the clinic, they start by opening the file and stand on the queue and after that we see them in the rooms. They come at the clinic every day from Monday to Friday. So when they come in they must have the RHC booklet with them so with the RHC booklet it is the one that guides about the growth, the development of a child. So with it we go and check on the relevant pages for the monitoring of weight, monitoring of mid arm circumference and also with the height (eh) checking the height against weight or weight against age so that we can monitor also the growth of the child how does it go.

**Researcher:** Thank you very much for that can you tell me more about (eh) how you interpret the (eh) weight, height and arm circumference according to age? as you have just stated.

**Participant:** Ok the weight (eh) we have a midline of the weight which I think it’s the green line on the RHC so in between that line, above that line there are two lines the positive 1 and positive 2 line and below also there are two lines which are the negative 2 line and the negative 1 line. So the weight of the child must not go above or below the midline. When it goes above the midline if it is above 2 it means that the baby is obese and if its less it is minus 2 it means that the
baby is losing weight and is malnourished. And then according to MUAC, we have a special tape for MUAC i Special tape for MUAC is with red, green and yellow tape so with that one the normal range for MUAC is 13cm. So if we check from the mid upper arm you check, if the baby falls on the 13th cm above or below. If the baby falls below it means the baby is malnourished and is not growing well and against height we check if the baby is stunted or what? Height against weight with that we correlate height with the weight. It is also having lines on the RHC if the lines are below that height and weight, the child is stunted.

Researcher: Ok I hear you talking about the height in relation to weight indicating stunting and MUAC special tape and where it actually helped you to check if the child is under nourished, and when the child is undernourished according to your interpretation what do you do in your practice?

Participant: Ok In our practice we do have a dietician who comes on Wednesdays so we refer those children to the dietician who gives them supplements and also we have the porridge that they give them with the return date of two weeks, but if the dietician is not there I have a book that I record the children who are malnourished. I give them supplements, the porridge and the return dates to come back in two weeks so that we can monitor how the baby is growing and how the supplement is working well on the baby’s system.

Researcher: Ok I hear you and is there perhaps something you can tell us about how can your practice role be improved?

Participant: Ok the practice role of growth and development of a child can be improved at least by advising the mothers every day when they are at the clinic about the RHC booklet that it is important to them. Because it is having the relevant important pages like the oral rehydration solution (ORS) at home. There is a procedure that you can follow if you want to do ORS and also like when the baby is not well like having a high temperature. It shows you what to do and it shows the development stages of the baby. According to the weight chart you can see how the baby is doing for his development. So at least if you advise the mothers everyday about those things and to know what are the differences between those growths and developments and also know how to check and see if (me coughing) there any problems regarding the development of their kids.

Researcher: I hear you, can you perhaps tell me more about how can the nurses’ skill and role be improved because you related to educating the mothers what about the nurses practice and role?

Participant: Also the nurses at least the nurses too must be encouraged to advise the mothers who come everyday. They should also be encouraged to advise the mothers about the growth and development of the children because most of the mothers don’t know what is happening with their children, they just keep quiet and they wait until the baby has grown up and they can’t solve the
problem. Until you see that the baby cannot see, cannot talk, speak or not walk at that age and you realise that it's too late while the baby was attending the clinic every month.

**Researcher:** Ok I hear you talking about and emphasising that the nurses have to teach the mothers. How equipped are the nurses to teach the mothers regarding growth and development.

**Participant:** Ok at the clinic we use the digital weighing scale. We should also show the mothers how is the weight of the baby recorded so that the mother can see whether the baby is gaining or losing weight. They recognise it and you show the mother also how to record on the chart so that the mother can recognise whether the baby is gaining or losing weight.

**Researcher:** Tell me more about (eh) the insight of nurses in their practice and role what can be done in order for them to improve the practice role.

**Participant:** Ok for them like “eih” you know we nurses are not the same other nurses may work at their procedure. Most nurses do not record on the RHC booklet. You will find that the graph of the line of the weight monitoring is not going well if they don’t follow the dotted lines to record the weight, they just dot the line. We don’t know whether it is the weight or what? At least, if we dot the lines on the weight and also write on that month we will recognise that the baby weighed this. At least we will realise that child was weighed and write on the correct dot. Nurses should also be aware of what they are doing. If we mismanage other children like if you don’t care of what they are here for. Nurses should assess the children thoroughly because sometimes we nurses miss growth and development of babies. We miss them because we just checking “oh the baby is growing” well but we don’t check if they are walking or speaking, we don’t even ask the mother. We say that the baby is having a good weight that is important also.

**Researcher:** I hear you saying “eih” can you elaborate more what does “eih” comment mean to you?

**Participant:** That “eish” comment, it is like that, if you are a nurse you are not forced to work. You need to work accordingly because of one day it will be your family and you will find out that you were also doing the same mistakes. It would not be nice to you. You need to do what is good to others.

**Researcher:** Tell me more I hear you say some nurses don’t record or don’t put the lines on the graph.

**Participant:** I think they should also attend the workshop of how to record on the RHC booklet, because if you can’t record on that booklet you will always make mistakes.
Researcher: So you are talking about workshops. How often are you given the opportunity to attend workshops that relate to your practice and role concerning growth development monitoring of children?

Participant: I can say we do attend sometimes there’s a complaint of shortage where you are working. So we don’t go more often to the workshop. We don’t attend workshops accordingly because of the shortage of staff. So we don’t go more often to the workshops and they are needed those workshops. “So because of shortage we have to suffer” (giggling with a sad face)

Researcher: (Eehm) I see, you changing your face and talking about suffering. What do you mean by suffering can you elaborate more.

Participant: When I say suffering I mean that the poor kids are going to suffer and we poor nurses. While we will be thinking that we are doing the right thing, doing the opposite we will be lacking knowledge having knowledge deficit.

Researcher: Thank you for your elaboration concerning workshops. Is there perhaps anything that you want to add additional to how you practice your role in assessing growth and development of children?

Participant: (Uhh) what I can say, for improvement also there’s a lot happening in the facility there are lot of changes every day. If there were four nurses delegated for seeing children, they will make a difference, those will know how to work with children and that will be better because they will know everything that they will cover about that. If the one is not in the other will be in. But because of shortage I don’t see that happening unless if I don’t know (giggling).

Researcher: If I hear you well changes of nurses constantly contribute to what? May you say more?

Participant: Changes of nurses lead to mismanagement of babies because “this day you see this nurse in this room and the next day you see another nurse and things changes. So if there would be nurses who could attend workshops about RHC growth and development of children, those nurses can be allocated accordingly. So, If the nurse rotates she knows this routine, she will mismanage the kids because of knowledge of other things.

Researcher: I hear you, thank you very much. If there’s anything else can you tell me more or because I can see you folding your arms is that it?

Participant: I think that’s it.
Researcher: Thank you very much for your participation. The information that you gave me is valuable, after consulting with my promoters I will come back if need be. Thank you for your participation.