

*FACTORS ASSOCIATED WITH
PRE-ECLAMPSIA AND
QUALITY CARE OF AFFECTED
TEENAGERS DURING LABOUR
WITHIN HEALTH REGION H. IN
KWA-ZULU NATAL PROVINCE*

By

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WITHIN HEALTH REGION H. IN KWAZULU-
NATAL PROVINCE**

By

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Submitted in fulfilment of the requirements of M.A.
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DECLARATION

I, **NOKUTHULA JOY DLAMINI**, declare that “Factors associated with pre-eclampsia and quality care of affected teenagers during labour within Health Region H in KwaZulu-Natal Province” is my own work and all sources used or quoted have been acknowledged by means of complete references.

SIGNATURE:


(N.J. DLAMINI)

DEDICATION

This work is dedicated to the following:-

- (i) My colleagues in the nursing profession who provide midwifery care to patients and clients.
- (ii) Midwifery students as a motivation for further research studies.
- (iii) My children Nomfundo, Sinenhlanhla and Thuthukani.
- (iv) My late mother Bonisiwe Zungu for instilling in me a love of education.
- (v) My brother and his wife Mr and Mrs C.T. Zungu.
- (vi) My beloved husband Johannes for his love, encouragement and support through all my studies.

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ABSTRACT

This is a descriptive, exploratory study which aimed at identifying the factors that are associated with pre-eclampsia in teenagers. The study also aimed at assessing the quality of midwifery care during labour in teenagers with pre-eclampsia so that recommendations can be made based on empirical findings.

The study was done within Health Region H of KwaZulu-Natal Province in South Africa. A structured interview schedule was designed to tap information from pre-eclamptic teenagers in an attempt to identify factors associated with pre-eclampsia. A checklist was also designed and administered to assess the care of a pre-eclamptic teenager during labour.

The study revealed that factors like age, nulliparity and socio-economic status were associated with pre-eclampsia. In as far as the rest of the factors, there was no relationship as indicated in previous studies.

The study also revealed that teenagers affected by pre-eclampsia delayed in attending the antenatal clinic resulting in the control of the disease being difficult. In as far as midwifery care, the study revealed that psychological and social care, as well as the hygienic state of patients was not satisfactory.

Based on the findings of the study, it is recommended that health education on prevention of pre-eclampsia should be done on an ongoing process, while carers for teenage mothers should be given inservice education programmes on psychosocial care. The physical environment for maternity units must be improved.

OPSOMMING

Hierdie is 'n beskrywende navorsingstudie wat ten doel het om die faktore wat geassosieer word met pre-eklampsie by tieners, te identifiseer. Die studie het ook gepoog om die kwaliteit van kraamversorging gedurende verwagting by tieners met pre-eklampsie vas te stel, en aanbevelings, gebasseer op empiriese bevindings, wat toegepas kan word op verpleging van pre-eklamptiese tieners, te maak.

Die studie is gedoen by die Ngwelezane Gesondheidsafdeling in die KwaZulu-Natal provinsie. 'n Gestruktureerde onderhoudskedule was ontwerp om die informasie van pre-eklamptiese tieners te verkry in 'n poging om faktore, geassosieer met pre-eklampsie te identifiseer. 'n Kontrolelys was ook ontwerp om die versorging van pre-eklamptiese tieners gedurende kraam vas te stel.

Die studie het openbaar dat tieners wat deur pre-eklampsie geaffekteer word, te laat begin om die nageboorte kliniek te besoek en dat kontrole oor die siekte daarom baie moeilik word. In die afdeling oor verloskunde, het die studie onthul dat verpleegsters hulle beste versorging gee, maar meer indiens opleiding in verband met psigososiale versorging van pre-eklamptiese tieners nodig het. Die fisiese struktuur van die kraamafdeling gee nie aan die verpleegsters 'n kans om die pasiënte behoorlik te versorg tydens kraam nie.

Aanbevelings lê klem op die opvoeding van die gemeenskap en tieners oor pre-eklampsie, indiens opleiding oor psigososiale versorging van tieners vir verloskundiges en verbetering van die fisiese struktuur van die kraamafdeling.

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CHAPTER 1

OUTLINE OF THE STUDY

1.1 INTRODUCTION

Hypertension during pregnancy causes an increase in maternal and perinatal morbidity as well as in foetal and neonatal mortality. Moreover, it may result in increased incidence of placental insufficiency with consequent intra-uterine growth retardation (Moodley 1991:80; Schenker, Rippman and Weinstein 1984:375).

Gestational hypertension appears in the second half of pregnancy or 24 hours postpartum. This is of great concern in relation to teenage patients who usually do not attend the antenatal clinic early enough and the disease is discovered late when it has already advanced (Pritchard, MacDonald and Gant 1985:525)..

If pre-eclampsia is discovered in its earliest manifestation it is possible to control and prevent it from complicating to eclampsia. Methods used to prevent or reduce pre-eclampsia include dietary and pharmacological manipulation. During labour blood pressure fluctuates, therefore this needs careful monitoring so that prompt action is taken to prevent complications. For hypertensive disorders of pregnancy, the community should be made aware of warning signs that can be used for early detection of conditions requiring action (Moodley 1991:75; Pritchard, MacDonald and Gant 1985:458).

1.2 BACKGROUND OF THE PROBLEM

There is an increase in teenage pregnancy in the African community of South Africa and in addition to this issue, the pregnant teenagers are increasingly presenting with pre-eclampsia. The increasing incidence of pre-eclampsia in teenagers has been observed amongst those in Health Region H of KwaZulu-Natal Province, South Africa.

TABLE 1.1: STATISTICS OF PRE-ECLAMPTIC TEENAGERS FROM 1990 TO 1995 AT NGWELEZANE HOSPITAL IN REGION H (AS REFLECTED IN THE RECORDS OF NGWELEZANE HOSPITAL)

YEAR	NUMBER OF TEENAGERS ADMITTED	NUMBER OF TEENAGERS WITH PRE-ECLAMPSIA
1990	1040	380
1991	1260	420
1992	1390	425
1993	1400	533
1994	1477	550
1995	1680	582

Statistics showed that in 1990 three hundred and eighty (380) teenagers with pre-eclampsia were admitted, in 1991 four hundred and twenty (420) were admitted, in 1992 four hundred and twenty five (425) were admitted, in 1993 five hundred and thirty three (533) were admitted, in 1994 five hundred and fifty were admitted and in 1995 five hundred and eighty two (582) were admitted. These numbers have shown a significant rise from one year to another (Ngwelezane Hospital Records 1990-1995).

Ngwelezane Hospital is a regional hospital in Health Region H. in KwaZulu-Natal Province. It has the following catchment area:-

- ten (10) community hospitals
- fifteen (15) satellite clinics and
- sixty three (63) mobile clinic points.

The maternity department has a bedstate of one hundred and ten (110).

Approximately nine thousand (9000) to ten thousand (10 000) maternal patients are admitted per year, and among these patients one thousand (1000) to one thousand six hundred (1600) are teenagers. In 1995 approximately nine hundred (900) to one thousand seven hundred (1700) maternal patients were admitted per month. By the end of the year 1995 nine thousand six hundred and ninety nine (9699) maternal patients were admitted. One thousand six hundred and eighty (1680) of the maternal patients

were teenagers. Five hundred and eighty two (582) of these teenagers were suffering from pre-eclampsia (Ngwelezane Maternity Department Records 1990-1995).

Pre-eclampsia is a condition which is specific to pregnancy. It is characterised by a clinical syndrome of generalised oedema, hypertension and proteinuria (Beischer and Mackay 1988:169; Bennett and Brown 1990:295).

Pre-eclampsia is associated with nulliparous women, women with hypertension, chronic renal disease, multiple pregnancy, erythroblastosis, diabetes mellitus and hydatiform mole as well as those women who had previous pre-eclampsia (Moodley 1991:74). The researcher has observed several teenage cases who suffered from pre-eclampsia but could not be classified according to the already mentioned conditions. This has drawn the researchers interest into the contributory factors of this and, also to look at the quality of management of labour of the affected patients. In this study the researcher undertook a survey on teenagers with pre-eclampsia who were admitted at Ngwelezane Hospital.

1.3 STATEMENT OF THE PROBLEM

A teenager in this context means a young woman who has reached puberty with the age ranging between thirteen (13) years and nineteen (19) years old. Teenagers usually become pregnant while they are still at school. Many have a tendency of hiding their pregnancy until it is late, when the abdominal girth grows bigger and becomes visible. Pre-eclampsia does not cause any pain or discomfort in its early manifestation.

Therefore during early stages of pregnancy there is nothing that forces a teenager to come forward with the pregnancy, to a health care centre for monitoring.

This poses a problem and results in pre-eclampsia not being diagnosed in time for proper monitoring and management. The teenager often comes late when complications, which might even lead to the death of the mother and baby are evident.

Pre-eclampsia is the researcher's great concern because:

- (i) It is a killer disease. Its silence in presentation coupled with the teenager's ignorance and the wish to hide the pregnancy, contributes to late reporting at the health centre.

- (ii) The devastating consequences of the condition are as follows:-

Immediate consequences

- ◆ high blood pressure
- ◆ vasospasms resulting in deterioration of function in a number of organs and systems
- ◆ placental insufficiency (Pritchard et al 1985:535).

Subsequent consequences

- ◆ convulsions
- ◆ disseminated intravascular coagulation and coagulation failure
- ◆ foetal growth retardation
- ◆ foetal and maternal death (Beischer and Mackay 1986:175).

- (iii) The numbers are increasing at Region H. as reflected in Table 1.1.

Quality of nursing care during labour was also investigated because during labour, a mother to be, undergoes a stressful and exhausting experience. Moreover, during labour the blood pressure fluctuates. Therefore the condition may complicate, resulting in more problems after delivery.

1.4 ASSUMPTIONS

- (i) Pre-eclampsia is associated with some factors as well as problems encountered by teenagers during pregnancy with health care centres.
- (ii) Nursing intervention rendered to a pre-eclamptic teenager during antenatal care visits is not satisfactory.
- (iii) Psychological support by nurses to affected teenagers during labour is not sufficient.

1.5 OBJECTIVES

- (a) To identify factors that are associated with pre-eclampsia in teenagers.
- (b) To assess the quality care during labour in affected teenagers.

- (c) To make recommendations on the basis of empirical findings as to relevant advice and effective management of pre-eclamptic teenagers.

1.6 **METHODOLOGY**

A descriptive exploratory design was used with a target population being teenagers, with pre-eclampsia, admitted at Ngwelezane Hospital in Health Region H. during the years 1993 and 1994. Data was collected through interviews and observation checklist.

1.7 **SIGNIFICANCE OF THE STUDY**

It is hoped that the findings of the study will help towards facilitating quality care for teenage pre-eclamptic patients, and create an awareness towards prevention of the occurrence of the disease. The following could be an outcome:-

- (1) Nurses give appropriate health education which will alert teenagers as a group at risk of pre-eclampsia.
- (2) Nurses educate the community about pre-eclampsia and help teenagers where possible.
- (3) Pre-eclamptic teenager care incorporating the psychosocial aspect as an important component, and lastly,
- (4) Health care givers' awareness of problems of pregnant teenagers, so as to work towards minimising them.

1.8 **DEFINITION OF TERMS**

1.8.1 **Pre-eclampsia**

Pre-eclampsia also known as pregnancy-induced hypertension or gestational proteinuric hypertension is a disease specific to pregnancy, occurring after the twentieth week, characterised by hypertension, proteinuria and oedema (Bennett and Brown 1989:294; Reeder, Martin and Koniak 1992:801 and Sellers 1993:1161).

1.8.2 Superimposed pre-eclampsia

This refers to the development of pre-eclampsia in a patient with pre-existing hypertensive vascular or renal disease (Reeder, Martin and Koniak, 1992:818; Pritchard, MacDonald and Gant, 1985:456).

1.8.3 Gestational hypertension

This refers to the development of high blood pressure during pregnancy, labour or within the first twenty four hours postpartum, in a previously normotensive woman, who has no evidence of hypertensive vascular disease or proteinuria (Sellers 1993:1161).

1.8.4 Generalised oedema

This refers to swelling of the whole body which may start with swelling of feet, ankles and legs (Pritchard, MacDonald and Gant 1985:459).

1.8.5 Teenager

A teenager is a person between the ages of thirteen and nineteen (Ilson, Crystal, Wells and Long 1991:1553). For the purpose of the study a teenager refers to a young woman aged between thirteen and nineteen who is suffering from pre-eclampsia.

1.8.6 Gestational proteinuria

This refers to the presence of protein in urine during or under the influence of pregnancy without coexistent hypertension, renal infection or known intrinsic renovascular disease (Pritchard 1985:453; Beischer and Mackay 1988:59; Martin, Reeder and Koniak 1992:803).

1.8.7 Health ward

KwaZulu Department of Health and Welfare was divided into seven (7) regions namely, Ngoye, Edendale, Mlazi, Ntuzuma, Mnambithi, Nongoma and Jozini. Each region was further divided into areas called Health Wards. Each Health Ward had a hospital which acted as a focal point for the provision of health services. The Medical Superintendent

and the nurse administrator of the focal point hospital used to plan, organise, implement and evaluate a total health care service for the whole health ward (Nzimande 1984:12).

1.8.8 Regional hospital

This refers to a hospital with a bedstate of four hundred (400) beds or more, from which clinics, both satellite and mobile service points, radiate. Such a hospital is also a training school for professional nurses, and provides some degree of specialisation services for district hospitals and sub-hospitals (Nzimande 1984:12).

1.8.9 District hospital (community)

This refers to a hospital with a bedstate between one hundred and twenty (120) to three hundred and ninety nine (399), from which satellite clinics and mobile service stopping points radiate. It may be a training school for enrolled nurses. Medical services provided within these district hospitals are limited because of lack of physical facilities or inadequate medical coverage (Nzimande 1984:12).

1.8.10 Satellite clinic

This refers to a health facility away from the hospital, with a registered nurse in charge. Preferably, this registered nurse must hold a post basic qualification, in community health nursing. The nurse can diagnose and treat some problems, usually termed 'minor ailments' that she can cope with and refer to a doctor those she cannot manager (Nzimande 1984:14).

1.8.11 Mobile clinic

This refers to mobile service stopping points which are sites, visited at regular intervals by a health team consisting of registered nurses, preferably with additional qualifications of community health nursing and psychiatric nursing. Facilities already available in the community like church halls, schools, shops are utilised for this service. All services provided at satellite clinics can be provided excluding delivering of maternity cases (Nzimande 1984:14).

1.8.12 Maternity unit

For the purpose of this study, a maternity unit refers to a department in a hospital which has been adapted for maternal admissions for the purpose of rendering mother and child care health services such as antenatal care, care during labour and delivery, and puerperal care of the mother and baby.

1.9 ORGANISATION OF THE REPORT

The report of this study is organised in chapters as follows:-

Chapter 1 gives an outline of the study. The discussion gives background to the study, background of the problem, statement of the problem, assumptions, objectives to be achieved, methodology, significance of the study and definition of terms used in the study.

Chapter 2 presents an overview of literature review on factors associated with pre-eclampsia.

Chapter 3 presents an overview of literature review on the management of pre-eclampsia particularly during labour.

Chapter 4 presents the theoretical framework.

Chapter 5 presents a description of the research methodology. It includes an explanation of the research design, sampling procedure, design of the instrument, pilot study and ethical implications.

Chapter 6 presents the analysis and interpretation of data collected from teenagers suffering from pre-eclampsia.

Chapter 7 presents analysis and interpretation of data collected through the use of a checklist on management of a pre-eclamptic teenager during labour.

Chapter 8 presents a summary of the research, conclusions, limitations and recommendations.

CHAPTER 2

AN OVERVIEW OF FACTORS ASSOCIATED WITH PRE-ECLAMPSIA, PATHOLOGY AND PATHOPHYSIOLOGIC ALTERATIONS AND CLINICAL PRESENTATION OF THE DISEASE

2.1 INTRODUCTION

In pregnancy raised blood pressure is a dangerous complication which is associated with high mortality and morbidity in both the mother and foetus. The normal resting blood pressure is usually 120/80 mmHg. Since the plasma volume increase averages 1 200 ml, there must be some vasodilatation to allow the peripheral pressure to remain low. If this vasodilatation is counteracted by an arteriolar spasm, hypertension results and there is a reduction in the perfusion of all organs including the uterus. In pregnancy hypertension forms part of an easily recognisable clinical syndrome, comprising of hypertension, proteinuria and oedema. This syndrome is called pre-eclampsia or pregnancy induced hypertension. If these signs are ignored in a pregnant woman eclamptic convulsions result and the condition may lead to the death of the mother and the baby (Garrey, Govan, Hodge and Callender (1980:163).

Pregnancy may induce hypertension in previously normotensive women or aggravate hypertension in women who are already hypertensive. Hypertensive disorders of pregnancy are common complications that continue to be responsible for the majority of maternal deaths. They are an even more important cause of perinatal mortality and severe morbidity. However good prenatal supervision followed by appropriate treatment will reduce the incidence and the outcome for the mother and baby would be satisfactory (Pritchard; McDonald and Gant 1985:525).

Pre-eclampsia usually manifests during the second half of pregnancy. If hypertension is detected before the 20th week of pregnancy or persists after puerperium, some other

cause of hypertension may be existing, such as essential hypertension or a renal disease (Garrey et al 1980:163).

2.2 THE PRE-ECLAMPTIC WOMAN AND RELATED PROBLEMS

Pre-eclampsia is frequently seen in young primigravidae. The cause of this is not yet known but there may be associated factors. The problem in patients with pre-eclampsia is that it does not initially cause pain to the sufferer and therefore many of the teenagers seek medical assistance only when the disease is advanced as they start to experience signs such as headaches which persists even after treatment, that is known to be effective for headaches, or when there is hyperreflexia, visual disturbances, epigastric pain and maybe oliguria (Varney 1987:146).

The incidence of pre-eclampsia is high in nulliparas. Beischer and Mackay (1986) identified that in about 20-25% of patients, the onset of this disease occurs when the patient goes into labour. These two authors also identified the occurrence of this disease in association with large quantities of hormones produced in cases of hyperplacentalos in conditions such as rhesus isomunization, diabetes mellitus, multiple pregnancy or hydatiform mole. It is not known how pre-eclampsia is related to the excess water in tissues and subsequent vasospasm that is responsible for the rise of blood pressure. In pre-eclampsia there is usually too little fluid in the vascular system and too much fluid in the extravascular tissues. This results from a rise in capillary pressure forcing the fluid out of the capillaries and/or a reduction of the colloid osmotic pressure which keeps the fluid in and/or a greater permeability of the vessel wall.

Pre-eclamptic patients show poor tolerance to blood loss, shock and major surgical procedures due to hypovolaemic intravascularly, and too much fluid in the extravascular system. This results from a rise in capillary pressure, forcing the fluid out of capillaries and/or reduction of the colloid osmotic pressure which keeps the fluid in and/or a

greater permeability of the vessel wall (Beischer and Mackay 1986:170). These problems put a teenager with pre-eclampsia and the unborn baby at a high risk.

Pre-eclampsia requires special medical attention during the intrapartum period. The potential complicating factors include placental insufficiency, abruption placentae, renal changes and maternal convulsions. Intrapartum management is aimed at preventing these complications by optimal timing and control of delivery. The diagnosis of pre-eclampsia is based upon the development of hypertension after the 20th week of gestation. It rarely occurs at an earlier date. Proteinuria is a late sign but it is less reliable since it occurs in many normal pregnancies. The main goals of medical management are to maintain the health of the mother and foetus until the final treatment or the delivery of the baby is carried out (Oxorn 1986:847). Pregnancy induced hypertension also results in the birth of a premature infant. This increases the incidence of death among infants of pre-eclamptic mothers (Harrison, Keet and Shore 1987:79).

In normal conditions pregnancy exerts an antihypertensive effect on a woman and this is more marked during the second trimester of pregnancy and it occurs in both systolic and diastolic pressures. The lowest levels are reached between the 20th and 24th week of pregnancy. The blood pressure rises slowly again towards term (McGillivray 1983:40). In pre-eclampsia the blood pressure becomes high during this time when it is expected to be at its lowest levels.

In some cases the patient suffers from pre-eclampsia when she has already been affected by superimposed pre-eclampsia. Superimposed pre-eclampsia is the development of pre-eclampsia in a patient with chronic hypertensive vascular or renal disease (Philipp, Barnes and Newton, 1987:375). These authors further stipulate that there are many theories of the aetiology and pathogenesis of pre-eclampsia, but there are a limited number of pathways by which blood pressure can be elevated and these factors relate principally to the cardiac output and peripheral vascular resistance. Some aetiological views of pre-eclampsia such as disseminated intravascular coagulation have been stated by many researchers as playing an important part in the pathological sequelae of pre-eclampsia, but it is not clearly explained in these changes, the mechanism by which hypertension develops.

Campbell and MacGillivray (1982) measured the plasma volume, total body water, plasma aldosterone, progesterone, prolactin and unconjugated oestriol in normal and pre-eclamptic pregnancy. They found that pre-eclamptic patients had lower aldosterone and higher prolactin concentrations compared with the normotensive woman and this suggested that aldosterone is important in maintaining the plasma volume and regulating sodium and water retention in normal pregnancy but not in pre-eclampsia.

Symonds (1980) proved that in pre-eclamptic patients there are vascular changes which are related to the production of angiotensin. Angiotensin is a substance which produces vasoconstriction that results in elevated blood pressure. Vasospasm that occur in pre-eclamptic patients results in hypoxia. In response to hypoxia the juxta cells which are in close association with the glomerulus release the enzyme renin. Renin acts on blood plasma globulin called angiotensinogen bringing about release of the angiotensin which results in high blood pressure (Brown and Jaros 1977:12:14). Symonds (1980) as quoted by Philipp *et al* (1987) further stated that the venous blood in the cord of infants born to mothers with pre-eclampsia show high levels of angiotensin II. Therefore it is possible that some of this angiotensin may be released directly from the uteroplacental bed into the maternal circulation. Gant (1974), O'Brien (1977) and Symonds (1980) have shown evidence to suggest a close interaction between the prostaglandin system and the renin-angiotensin system in the uteroplacental circulation and that this relationship may play an important part in the regulation of uterine blood flow. The release of angiotensin II from the uteroplacental bed into the general circulation of the mother may result in an increase in blood pressure and hence an increase in the uteroplacental perfusion pressure.

A woman with pre-eclampsia also has a problem of abnormal activation of both the platelets and the coagulation system. There is a reduced number of circulating platelets and the lifespan of platelets is shortened in comparison with a women who has a normal pregnancy (Philipp *et al* 1987:356). These platelet changes indicate an increased platelet aggregation and platelet emboli in pre-eclampsia most probably originating in the microcirculation of the placenta. In pre-eclampsia the levels of serum fibrin

degradation products (FDP) are increased above those found in normal pregnancy, as well as urinary FDP are markedly raised (Philipp et al 1987:357). There is evidence which indicates that in pre-eclampsia, an abnormal activation of the platelets and coagulation system is present and this affects the uteroplacental circulation and other organs especially the kidneys and the liver. In severe pre-eclampsia the degree of the coagulation disorder may be severe leading to haemostatic failure. This is usually shown by bleeding from the nose, mouth, skin petechiae and bleeding around the venepuncture, injections or sutures. In such a situation the patient may experience severe bleeding during and after a caesarean section. Therefore control of hypertension, maintenance of blood volume and replacement of essential haemostatic components are essential.

2.3 PREDISPOSING FACTORS OF PRE-ECLAMPSIA

2.3.1 Heredity

There is evidence that in some families pre-eclampsia has a tendency to occur. Therefore it is assumed that heredity also contributes to eclampsia. Chesley, Andicco and Cosgrove (1968) as quoted by Moodley (1988) conducted the first systematic study of familial factors in pre-eclampsia. Moodley (1988) studied in detail pregnancies in daughters, granddaughters, daughters-in-law and sisters of women who had pre-eclampsia. He found that the incidence of pre-eclampsia in the daughters of these women was at least 26% with, 25% of the granddaughters having pre-eclampsia in their first pregnancies. The incidence of pre-eclampsia in sisters was 37% while the incidence in the first pregnancies of the daughters-in-law was only 8%. Some complicated into eclampsia. Moodley (1988) further reports that this study together with two similar reports by Humphries (1960) and Adams and Finlayson (1961) strongly suggest that there is familial tendency to both pre-eclampsia and eclampsia. Pritchard, McDonald and Gant (1985) also documented that there is no specific chromosome abnormality or leukocyte antigen type that has been identified in mothers who get pre-eclampsia, but they have identified that there is an increased incidence of pre-eclampsia in daughters of patients who manifested the syndrome during their own first pregnancy. They concluded that this is most likely indicative of familial tendency.

In their study Sutherland, Cooper, Howie, Liston and McGillivray (1981) found that there is a familial tendency to pre-eclampsia. This study confirmed the studies done by Humphries (1960); Adams and Finlayson (1961); Chesley, Anidicto and Cosgrove (1968) and Pritchard *et al* (1985). These experiments were done on mothers and daughters who had pre-eclampsia.

2.3.2 Age

Butler and Alberman (1969) as cited by Moodley (1988) have identified that many studies show an increase in the incidences of pre-eclampsia with age and the incidence is still higher in primigravidae. In teenagers it is not clear whether the high incidence of pre-eclampsia is related to poor antenatal care which is associated with the concealing of pregnancies. Moodley (1993) even though confirming that teenage mothers are at high risk for pre-eclampsia does not provide rationale thereof.

Remich and Youngkin (1989) in their study of factors associated with pre-eclampsia supported the previously demonstrated relationship between the low maternal age and the development of pre-eclampsia. She provides additional evidence in the support of education of young women, in the methods of preventing early childbearing and its associated risks. Her research also offered additional support for the importance of monitoring mean arterial pressure changes throughout pregnancy. She further states that when the mean arterial pressure drop in the second trimester to a level that is lower than the first trimester, it is unlikely that pre-eclampsia develops, but when the mean arterial pressure stays at the same level or increases in the second trimester it is likely that the client develops pre-eclampsia.

2.3.3 Nulliparity

Chesley (1978) states that Mauricean observed that primigravidae are more likely to develop pre-eclampsia than multigravidae. Since this date it was acknowledged and also

observed that during the first pregnancy women are most likely to develop pre-eclampsia. When pre-eclampsia occurs in multigravadae this is usually associated with a pre-existing condition such as multiple pregnancy, chronic hypertension or diabetes mellitus.

2.3.4 Socio-economic status

In the 1930s studies indicated that women of the upper class were prone to pre-eclampsia. Brewer (1966) on the other hand reported that women of the lower class were susceptible to pre-eclampsia. It was assumed that poor women were cared for by midwives at home while rich women were cared for by trained doctors only, who could observe and monitor the condition and keep records for future use. Pre-eclampsia is fatal and is common in the low socio-economic groups. This notion is supported by Remich and Youngkin (1989:20) when they report that the incidence of pre-eclampsia is five and seven percent of all pregnancies and is higher in the low socio-economic groups.

2.3.4.1 Diet

Studies of diet in relation to pre-eclampsia are not well supported. They are open to criticism with respect to selection of subjects, controls and lack of consideration of antenatal care, age and parity. Therefore it remains difficult on the evidence available to define exactly the role of nutrition in pre-eclampsia. There is no scientific basis for believing that deficiency or excess of any essential nutrient predisposes to pre-eclampsia (Moodley 1988:12).

Mac Gillivray (1983) maintains that the evidence is not well supported that lower social class women in different parts of the world have a higher incidence of pre-eclampsia due to poor nutrition. In the United States of America some researchers associated poverty with pre-eclampsia and some did not. The other more scientific approach to the

question of the influence of nutrition in pre-eclampsia was by dietary surveys and by the study of the effects of supplementation of diets. Earlier studies of supplementation are often quoted as evidence but all these studies had deficiencies either in their selection of cases or in the definition or in the assessments of diets (Mac Gillivray 1983:310).

The World Health Organisation, Expert committee in (1965) came to the conclusion that there was no scientific basis for believing that either deficiency or excess of any essential nutrient predisposed to pre-eclampsia but there is a possibility that the nutritional status of the patient might modify the course of the disease (Xth World Congress of Gynaecology and Obstetrics 1982).

Beischer and Mackay (1986) found that pre-eclampsia was less common in women whose diet contained lots of fibre. They also related this to the fact that it could be the result of changes in the gut steroids or it may reflect differences in the intake of other nutrients for example, a high fibre diet usually has a high magnesium content. What these authors found also ties with what researchers mentioned above, who pointed out that there was no firm scientific basis of the dietary contribution towards pre-eclampsia. Newman and Fullerton (1990) have done a study on nutrition as an aetiological factor in the development of pre-eclampsia. They found that deficiencies of a variety of nutrients have been reported in women with pre-eclampsia. Results of these studies are conflicting and further investigations are necessary. Nevertheless some evidence is highly suggestive of a relationship between nutritional status and the onset or progress of the disease. They have reviewed data on the role of proteins, magnesium, calcium, polyunsaturated fatty acids, zinc and sodium.

(i) **Protein**

The primary role of protein is cellular growth and repair. Adequate protein is necessary for normal fluid and electrolyte balance as well as for lipid transport. Characteristic clinical findings in pre-eclampsia are hypoalbuminaemia and hypovolaemia with subsequent haemoconcentration often masking anaemia and low total albumin.

Therefore a constant optimum dietary intake of protein to supply amino acids as well as a healthy functioning of the liver to synthesise the plasma protein, (albumin) may be important for maintenance of normal osmotic pressure and prevention of oedema. Protein also functions as a major means of transporting lipids in the bloodstream. An inadequate supply of dietary protein can hinder the conversion of fats to their lipoprotein transport form, resulting in a reduced delivery of triglycerides (energy) to the cells and accumulation of fat in the liver. Fatty infiltration of the liver causes a reduction in its metabolic efficiency which may further adversely affect plasma protein synthesis and thus affect water balance and blood pressure. Protein is therefore essential for the maintenance of physiologic fluid balance and transport mechanisms. Women who experience pre-eclampsia are found to demonstrate alterations or imbalances in this regard.

(ii) **Magnesium**

Magnesium ion inhibits smooth muscle contraction in the heart, arteries and the uterus in general. Increasing magnesium in the blood has a powerful vasodilatory effect. On the contrary hypomagnesaemia increases vascular constriction and raises blood pressure. Magnesium deficient persons have been noted to have a normal serum sodium; but to maintain this they must have been retaining fluid (oedema) which is another characteristic of pre-eclampsia.

(iii) **Calcium**

Calcium is known to play a role in the regulation of blood pressure by virtue of its importance in membrane receptor and transport processes. A high concentration of calcium alters vascular smooth muscle responses by binding to muscle cell membrane, thereby stabilising it and reducing its excitability and inhibiting its contraction. This results in increased vascular tone and decreased blood pressure. Newman and Fullerton (1990) maintain that epidemiologic data indicates that in populations with low calcium intake the incidence of pre-eclampsia is higher. Therefore increased dietary calcium in prevention and management of pre-eclampsia is suggested although there is a limited

epidemiologic evidence. They further state that a few prospective and randomised dietary clinical studies also support a relationship between increased calcium and lowered blood pressure, which is in accord with the proven physiologic mechanism of the calcium ion. According to Herrera (1993:31) dietary factors such as calcium seem to affect blood pressure favourably and significantly reduce prematurity and pre-eclampsia risk.

(iv) Polyunsaturated fatty acids

Pre-eclampsia is characterised by hypercoagulability. Therefore polyunsaturated fatty acids may be important in the prevention of pre-eclampsia because of their role in the production of prostaglandins and thus in anticlotting/antiplatelet activity. There is evidence that indicates that prostacyclin production is decreased in pre-eclampsia. Prostacyclin is a potent vasodilator, an inhibitor of platelet aggregation and an inhibitor of uterine contractibility. On the opposite, thromboxane is a potent vasoconstrictor and facilitates platelet aggregation. Evidence through research has shown that thromboxane production in pre-eclampsia is either increased or unchanged so that the ratio of thromboxane to prostacyclin favours thromboxane and contributes to the increase of blood pressure. Newman and Fullerton (1990) further state that clinical and field study observations provide additional data to support a coagulation theory in the aetiology of pre-eclampsia and a role of polyunsaturated fatty acids in its prevention.

(v) Zinc and cadmium

Newman and Fullerton (1990) state that the development of pre-eclampsia during the third trimester has been associated with lower serum zinc concentrations. In five (5) women who developed pre-eclampsia during the third trimester, the mean total serum zinc level at six (6) to fourteen (14) weeks was 14% lower than the control values. The mean serum zinc level obtained at the first prenatal visit was noted to be 8% lower in forty nine (49) pregnant adolescents who developed pre-eclampsia when compared with two hundred and twelve (212) controls. They further state that other studies have reported serum zinc to be 20% to 30% lower in women with severe pre-eclampsia than

in controls. Zinc supplementation has been reported to reduce the occurrence of pre-eclampsia in some women.

Zinc competes with cadmium for binding sites in the biochemical processes in the body. Increased zinc intake decreases cadmium absorption from the intestines. Cadmium is one of the toxic metals which may cause renal impairment. Lowered zinc levels resulted in a higher cadmium/zinc ratio in the pre-eclamptic group than in the normal controls. A body of evidence that relates lowered zinc levels to an increased risk for pre-eclampsia is accumulating. The proposed mechanism of action is an association between serum levels of zinc and competing minerals and trace elements particularly cadmium. Essential trace elements are iron, copper, zinc, selenium and lithium. Toxic metals are lead, nickel and cadmium. The evidence is sufficient to advocate the ingestion of recommended dietary allowances of zinc (15 mg) which is generally ensured by ingestion of the minimum number of recommended servings from protein and milk products.

(vi) **Sodium**

Rapid weight gain and generalised oedema are clinical features of pre-eclampsia. This is attributed to water retention which in turn is affected by sodium retention. The ability to excrete sodium is usually impaired in pre-eclampsia. This may be related to altered enzymatic regulation of active sodium transport at the cellular level. Sodium retention and oedema in pre-eclampsia may be related to a relative deficiency of magnesium. However pre-eclampsia also occurs without fluid retention in which case it is often more severe. When oedema is present the plasma volume is decreased compared with normal pregnancy and haemoconcentration occurs. Therefore any treatment that would potentially compound the hypovolaemia intravascularly such as dietary sodium restriction and diuretics is not recommended because it would further reduce placental perfusion (Newman and Fullerton 1990:288).

2.3.5 Placental abnormalities

As it has already been mentioned in this text, many researchers who have done studies on pre-eclampsia agree with each other that abnormalities responsible for the pre-eclamptic syndrome arise from the uteroplacental unit. Reports of pre-eclampsia associated with an abnormal pregnancy support that the placenta rather than the gravid uterus play the major role in the development of pre-eclampsia. Although there is no pathological placental abnormality in pre-eclampsia, an increase in the frequency of several lesions in the placenta has been noted. These lesions include cytotrophoblast proliferation; excess syncytial knots, thickened trophoblastic basement membrane and obliterative endarteritis (Dennis, McFarland and Hester 1985:457).

2.3.6 Season and climate

Factors such as excessive heat, humidity, warm and cold winds, mild weather and sudden changes in weather have been documented as having an influence in the incidence of pre-eclampsia. Studies done do not fully support this and their influence on pre-eclampsia remains questionable. Davies (1970) as quoted by Moodley (1988:13) allowed for the influence of age, parity, ethnic origin, educational level and area of residence in his statistical analysis, and found that climate had no effect on the incidence of pre-eclampsia.

2.3.7 Chronic hypertension

All chronic hypertensive disorders, regardless of their cause appear to predispose to the development of superimposed pre-eclampsia or eclampsia. Therefore it is difficult to diagnose pre-eclampsia in a woman who presents for the first time in an antenatal care clinic after the 20th week of pregnancy (Pritchard *et al* 1985:528).

2.3.8 Uteroplacental ischaemia

Researchers who have looked into factors contributing to pre-eclampsia associate uteroplacental ischaemia with conditions that compromise blood flows to the uterus. For instance a hydatiform mole, multiple pregnancy and diabetes mellitus are conditions in which an absolute increase in the size of the placenta occurs thereby requiring a greater vascular supply. In addition to this, blood flow to the uterus may be inadequate during the times of increased demands, such as labour, exercise and other situations which may aggravate pre-eclampsia. In primigravidae, uterine artery flow is remarkably smaller than in multiparas. The smaller artery size would be expected to be associated with a relatively lower rate of blood flow, which would explain why pre-eclampsia complicates first pregnancies more than subsequent ones.

Researchers such as Moodley (1993) Emans and Goldstein (1990); Remich and Youngkin (1989) have documented this information but still maintain that even if decreased uterine blood flow can produce pre-eclampsia, the mechanism by which the reduced blood flow induces high blood pressure is not yet known and remains controversial.

2.3.9 Disseminated intravascular coagulation

This is a disorder with anticoagulation and procoagulation effects existing simultaneously. In this condition clotting is overestimated throughout the circulatory system, possibly initiated by placenta abruptio, pregnancy induced hypertension, retained products of conception, infection or amniotic fluid embolism. These pathologic conditions act on either the intrinsic or the extrinsic pathways, creating increased formation of thrombin. The thrombin interacts with fibrenogen, resulting in formation of clots (Reeder and Martin 1987:758). While Reeder and Martin (1987) documented disseminated intravascular coagulation as possibly initiated by pregnancy induced hypertension and other factors such as placental abruption, Dennis, McFarland and Hester (1985) have stated that disseminated intravascular coagulation is one of the mechanisms by which abnormal placental function may initiate or aggravate pre-eclampsia.

2.3.10 Immune responses

Immune disorders have been suggested as a mechanism by which placental damage may occur and initiate the changes seen in pre-eclampsia. It has been suggested that antigenic differences between the foetus and mother may give rise to antibodies of maternal origin that either attack and damage the trophoblasts or inhibit normal trophoblastic migration in the second trimester of pregnancy. The role of immune mechanisms in the initiation of pre-eclampsia remains controversial because many researchers have failed to prove this from pre-eclamptic patients (Dennis *et al* 1985:457).

2.4 PATHOLOGY AND PATHOPHYSIOLOGIC ALTERATIONS WHICH MAY OCCUR IN A PRE-ECLAMPTIC PATIENT

Hibbard (1988) states that pre-eclampsia and its complications are directly responsible for about 1 in 6 of all maternal deaths in England and Wales. Sellers (1993) states that a general world incidence of the disease is 5% to 8% of all pregnancies, but 12% or more are primigravidae. The commonest causes of death are cerebro-vascular complications, cerebral oedema, hepatic and/or renal failure as well as cardiac failure. Hypertensive disorders are often contributory factors when death is primarily due to other disorders such as pulmonary embolism (Hibbard 1988:194).

Severe pre-eclampsia leads to haemorrhages in the subcortex, basal ganglia, pons and subarachnoid space. Multiple small thrombi may also be seen when post mortem is done. In the presence of pre-eclampsia, necrosis and haemorrhage are seen in the pituitary, pancreas and adrenal glands. The heart shows plasma exudate and oedema on the myometrium, together with thrombosis, fibrinoid deposits and patchynecrosis of vascular media resulting in haemorrhages. Endocardial haemorrhages are common. The lung shows vascular thrombosis and multiple small haemorrhages. Secondary bronchopneumonia is usually present in severe cases (Hibbard 1988:195).

Petechiae are widespread and lesions develop in the substance of the liver. Liver pathology may account for the epigastric pain which occurs in severe cases of pre-eclampsia. The blood vessels in the placenta and uteroplacental bed constrict, resulting in reduced blood flow. Occlusive thrombosis and vessel rupture may occur resulting in significant reduction of blood flow and placental function. The placenta shows infarcts. These infarcts may be red and soft in consistency indicating recent origin or white indicating a long standing compromise of circulation. White infarcts are also associated with intervillous deposits of fibrin. Microscopic studies of the pre-eclamptic placenta show an increase of immature trophoblasts and degenerative changes in other trophoblastic cells. There may be a loss of syncytium, thickening of the trophoblastic basement membrane, villus necrosis and acute fibrinoid degeneration of maternal decidual arteries. Another prominent feature is the marked congestion of the vasculature of the villus. In normal placentation, cytotrophoblasts disrupt the normal architecture of the spiral arteries in the decidua and myometrium and these vessels lose their musculo-elastic tissue (Hibbard 1988:197).

In pre-eclampsia the myometrial segments of the interoplacental arterioles are not invaded by cytotrophoblasts and these vessels retain their musculo-elastic tissue. It is presumed that they are then prone to develop a necrotising arteriopathy. Dennis, McFarland and Hester (1985) point out that the commonest causes of death in pre-eclamptic patients are congestive heart failure and cerebral haemorrhages. Factors that influence maternal mortality include age, multiple pregnancy, delayed hospitalisation, physician's unawareness of the severity of the mother's disease, coexisting renal disease and disseminated intravascular coagulation. In this regard Dennis *et al* (1985) also reported that blood from pre-eclamptic patients have no pressor effect when infused into normal women, but when it is autotransfused six days after delivery into patients with recent pre-eclampsia a rise in blood pressure results. These findings suggest that the plasma of pre-eclamptic women contain a pressor substance that is antagonistic to a depressor substance, or a substance that activates pressor agents. These researchers

have also indicated that prostaglandins counteract the effect of angiotensin 11 on the vascular wall and thereby may modify vascular reactivity.

In some pre-eclamptic patients a decrease in blood volume had been demonstrated. Its significance is not yet proven. Some researchers consider it to be having an aetiologic role, while others believe that it is a secondary phenomenon due to contraction of the vascular bed.

Lipid accumulation and median necrosis are early changes and massive intramural fibrin deposition occurs as a secondary event when pre-eclampsia is superimposed on chronic hypertension, the placental arteries show a combination of hyperplastic arteriosclerosis and acute atherosclerosis. Foetal nutrition and oxygenation are jeopardised and perinatal mortality and morbidity are increased in severe pre-eclampsia (Hibbard 1988:197; Pritchard et al 1985:458).

In case of death as a result of pre-eclampsia, postmortem indicates that kidneys are enlarged with a broad pale cortex contrasting with a congested medulla. Water and electrolyte balance is disturbed as sodium retention is greatest in oedematous patients. There are hormonal changes in pre-eclampsia which contribute to raising of blood pressure. Angiotensin 11 maintains blood pressure. Sensitivity to angiotensin 11 is reduced in normal pregnancy but is increased in pre-eclampsia. Hypercoagulability is a feature of normal pregnancy and is further increased in pre-eclampsia. Therefore acute disseminated intravascular coagulation is a frequent complication in severe pre-eclampsia. This may contribute to a fatal outcome as a result of perivascular haemorrhage and multiple thrombi in the brain (Hibbard 1988:180 & Pritchard 1985:465).

2.5 CLINICAL PRESENTATION OF PRE-ECLAMPSIA

2.5.1 Introduction

It is important that all pregnant women attend the antenatal clinic because it is only through timeous antenatal care that pre-eclampsia can be detected early. The two

important signs of pre-eclampsia which are hypertension and proteinuria cannot be detected early if the woman does not come for prenatal care. By the time the woman has developed signs like epigastric pain, headache or visual disturbances pre-eclampsia is almost always severe.

2.5.2 Blood pressure

A rise in blood pressure of 140/90 mm Hg or more taken after ten minutes rest is the first indication of pre-eclampsia. If vasospasm is severe very high levels of blood pressure up to 170/110 mm Hg or more can occur. If the diastolic pressure exceeds 100 mm Hg, it is an indication of severe pre-eclampsia (Sellers 1993:1164).

Bennett and Brown (1989) state that a rise of 15 mm Hg to 20 mm Hg above the normal diastolic pressure of the mother or an increase above 90 mm Hg on two occasions elicited at least six hours apart, when the mother has been at rest signifies that cardiovascular changes have taken place. A marked increase in the systolic pressure above that expected for the mothers age, for example, 140 to 170 mm Hg is also indicative.

The basic derangement in pre-eclampsia is vasospasm especially that of the arterioles. Therefore, the most dependable warning sign of pre-eclampsia is a rise in blood pressure. The diastolic pressure is a more reliable prognostic sign than is the systolic, and any persisting diastolic pressure of 90 mm Hg or more is abnormal (Pritchard 1985:541).

Beischer and Mackay (1986) also maintain that a blood pressure of 140/90 mm Hg or above is indicative of pre-eclampsia. They state that the common difficulty is the differentiation of early or mild pre-eclampsia and essential hypertension. This is only

evident after delivery when elevated blood pressure fails to subside where there is essential hypertension.

2.5.3 Proteinuria

When proteinuria is diagnosed together with hypertension, this is more indicative of pre-eclampsia. Proteinuria varies greatly from case to case and also in the same woman from hour to hour. Large amounts of proteinuria indicate severe pre-eclampsia. Proteinuria may be as much as 10g per litre in severe cases (Bennett and Brown 1989:295 and Pritchard 1985:544).

2.5.4 Weight gain

Pre-eclampsia may sometimes present itself with a sudden weight increase. Pritchard (1985) states that in some woman sudden weight increase is the first sign. Reeder and Martin (1987) further clarify that such weight gain is due to the accumulation of water in tissues. Such weight gain represent occult oedema and almost always precedes the visible face and finger oedema, which is characteristic of advanced stages of the disease.

Oedema may or may not be present. If present it can be clinical or subclinical. An excessive weight gain in the second half of pregnancy that is more than one kilogram in two weeks could be indicative of an occult or subclinical oedema. However other causes of sudden weight gain must be considered, such as multiple pregnancy, polyhydramnios or even overeating. Clinical oedema of feet, ankles, legs and/or hands, face, abdomen and vulva, together with high blood pressure and proteinuria will be indicative of pre-eclampsia. This oedema will not be relieved by a good night sleep. Oedema is graded into three. Grade I (or +) is when oedema affects ankles only. Grade II (or ++) is when swelling affects the lower limbs up to the ankles only. Grade III (or +++) is when there is generalised oedema (Sellers 1993:1165).

2.5.5 Vasospasms

Severe vasospasms, high levels of blood pressure and rupture of capillaries in various organs of the body and subsequent ischaemia produced may give rise to serious secondary features. The patient may experience cerebral signs and symptoms as follows:

2.5.5.1 Visual disturbances

This ranges from a slight blurring of vision to blindness. Such visual disturbances are thought to be attributable to retinal arteriolar spasm, ischaemia, oedema, and in rare cases, actual retinal detachment occur. Pritchard (1985) assures that the prognosis for such detachment is good, as the retina reattaches within a few weeks after delivery. Haemorrhages and exudates are rare in pre-eclampsia and when present usually indicate the underlying chronic vascular disease. Other secondary features include nausea and vomiting, ocular fundal changes and spots before eyes. (Sellers 1993:1166).

2.5.5.2 Epigastric pain

In severe pre-eclampsia the woman may experience pain on the right upper quadrant and this often indicates imminent convulsions. It is due to stretching of the hepatic capsule possibly by oedema and haemorrhage (Pritchard 1985:541).

Other secondary features will include severe proteinuria, generalised oedema, oliguria, placenta abruption, foetal distress and foetal death. There will be reduced blood flow to the placenta as a result of vasospasm. Changes in the placenta will result in placental insufficiency, intrauterine growth retardation, which in turn will cause foetal hypoxia and foetal death (Sellers 1993:1166).

2.6 CLASSIFICATION OF PRE-ECLAMPSIA

Pre-eclampsia is classified into mild, moderate and severe.

2.6.1 Mild pre-eclampsia

Bennett and Brown (1989) regard pre-eclampsia as mild if, after resting, the mother's diastolic pressure rises 15 to 20 mm Hg above the basal blood pressure recorded in early pregnancy or when the diastolic blood pressure rises above 90 mm Hg. Oedema of the feet, ankles and pre-tibial region may be present.

Beischer and Mackay (1986) classify pre-eclampsia as mild if there is generalised oedema and the diastolic pressure is 100 mm Hg. Sellers (1993) has documented that pre-eclampsia is mild if signs are mild, that is, if the blood pressure is 140/90 mm Hg with no other signs. Based on these authors mild pre-eclampsia would present with a diastolic pressure of 90 mm Hg to 100 mm Hg.

2.6.2 Moderate pre-eclampsia

Pre-eclampsia is moderate if there is generalised oedema and the diastolic pressure is 100 mm Hg or more (Beischer and Mackay 1986:172).

Pre-eclampsia is also regarded as moderate when there is a marked rise in the systolic pressure and diastolic pressure, when proteinuria is present in the absence of urinary tract infection and when there is evidence of a more generalised oedema (Bennett and Brown 1989:296).

2.6.3 Severe pre-eclampsia

According to Beischer and Mackay (1986) severe pre-eclampsia is related to generalised oedema, a diastolic pressure of 100 mm Hg or more and proteinuria. Bennett and

Brown (1989) regard pre-eclampsia as severe when the blood pressure exceeds 170/100 mm Hg, with proteinuria and marked oedema.

2.7 CONCLUSION

In this chapter an overview of factors associated with pregnancy - induced hypertension were given. Views of different researchers were highlighted. Pathology and pathophysiologic alterations which may occur in pre-eclamptic patients as well as clinical presentation as documented by different researchers and authors were described

The next chapter presents view points on the management of pre-eclampsia in particular when the patient is in labour.

CHAPTER 3

MANAGEMENT OF PRE-ECLAMPSIA

3.1 INTRODUCTION

In the management of pre-eclampsia it is important to bear in mind that mild pre-eclampsia may rapidly become severe. The main aim of management in pre-eclampsia is to terminate pregnancy with the least possible damage to both mother and baby. It also aims at getting a live infant, who is going to thrive after birth, as well as complete rehabilitation of the mother. Pritchard (1985) maintains that with the mother who is near term or at term it is possible to manage labour by means of induction to deliver a live baby and keep the mother as healthy as possible, but in early pregnancy, the only cure for pre-eclampsia is removal of the trophoblast.

The development of pre-eclampsia cannot entirely be prevented. However the course of the disease can be stopped at the mild stage and the complication of eclampsia can be prevented by undertaking health care activities initiated by health professionals and the continued selfcare by the patient. Selfcare permits people and families to take the initiative and responsibility of developing their own potential for health. Frances (1989) states that in developing countries where pre-eclampsia is most prevalent and where hospital facilities are sometimes not satisfactory, uncomplicated mild cases are better cared for at home. He believes that self-care will be the most effective and appropriate approach to enhance both the maternal and foetal well-being.

3.2 EARLY TREATMENT OF PRE-ECLAMPSIA

Hauth (1976) as quoted by Frances (1989) states that the treatment regimen consists of a general diet, rest, blood pressure measurement four-hourly while the patient is awake, measurement of weight three times weekly and random urine evaluation for proteinuria. He claims that with this regimen women who had mild pre-eclampsia were controlled

and within five days 316 (85%) out of 372 patients were found to be normotensive. Dawn (1986) also reported that out of three hundred (300) consecutive primigravidae, he could keep pre-eclampsia at a mild level, that is, at 140/90 mm Hg in 90% of clients, by his programme of restricting extra salt in the diet, two hours of rest after midday meal, and eight hours sleep at night while sleeping on sides. Reduction of oedema through diuresis was also noted by Speroff (1973) in pre-eclamptic women who rest in the lateral position. He noted this approach to be effective within a 24 hours period. Chesley (1978) stressed sleeping on the left lateral position in order to avoid compression on the inferior vena cava and the right ureter.

Frances (1989) also points out the use of the nursing process to assist the patients' family to learn and practise self care activities for which they have the right, responsibility, motivation, knowledge and skill to undertake. Sellers (1993) suggests adequate rest of twelve (12) hours during the night and three hours during the day to ensure improved blood flow to the heart and therefore to the placenta. A diet with high protein, high vitamin, low carbohydrate and no extra salt is recommended.

Orems selfcare nursing theory has been used in the context of the nursing process to teach patients to increase their selfcare agency to evaluate nursing practice and to differentiate nursing from medical practice (Frances 1989:189).

Genest, Kuchel, Hamet and Cautin (1985) stress the importance of rest and quiet environment in the management of pre-eclampsia. Some patients have been found to respond to rest alone in respect of pre-eclampsia, but after they have been discharged there is sometimes a relapse. Wren and Lobo (1990) advocate that bed rest will result in increased uterine and renal blood flow and achievement of diuresis.

Moodley (1993) also stresses dietary and pharmacological manipulation in preventing the progress of early pre-eclampsia. He states that low salt diet, and nutritional supplements with calcium, magnesium zinc, fish and evening primrose oil have been used with effect. He further states that recently low dose aspirin has been suggested as

a preventive agent to restore the altered ratio of prostacyclin to thromboxane in women with pre-eclampsia.

Sellers (1993) indicates the importance of frequent visits to the antenatal care clinic, if possible every week to ensure that the condition is not deteriorating. The patient should come to the clinic or hospital if she has swelling of legs or fingers, or if there is a decrease in foetal movement. She should be instructed on how to carry out the kick count test. At an antenatal care clinic visit, the patient should be referred to the doctor to assess the foetal condition and may order the foetal non-stress test and/or ultrasonic scan for signs of intrauterine growth retardation.

3.3 ADMISSION TO HOSPITAL

It is well documented by different researchers on pre-eclampsia that a well managed client with pre-eclampsia must be admitted into hospital by the 37th week of gestation. In cases where the woman gets a sudden rise in blood pressure or mass or where there is oedema of legs, hands, face, abdomen or vulva or if protein is present in urine or where there is any cerebral signs, or any fit/convulsions, the patient must be hospitalised immediately. The principles of management are close observation and monitoring of the foetal and maternal conditions. This includes awareness of possible complications and early recognition, treatment of abnormal clinical signs; delivery of the foetus at an appropriate time and by the appropriate route (Genest *et al* 1985:905; Oxorn 1986:848; Pearce and Steel 1987:95; Sellers 1993:1171).

It is recommended that a client with pre-eclampsia in the hospital be cared for by a trained midwife. The room where the pre-eclamptic patient is cared for must be quiet with good light so as to enable the midwife to see the patients' colour, level of consciousness and adequacy of respiratory movement. Severe headache, nausea and vomiting and visual disturbances signify cerebral irritation and impending eclampsia. In cases of severe pre-eclampsia or fits/convulsions a mouth gag should be used. The foetal heart rate is monitored continuously with a cardiotocograph. Maternal blood

pressure and pulse rate is monitored every fifteen (15) minutes (Pearce and Steel 1987:97; Wren and Lobo 1990:112).

Wren and Lobo (1990) indicate that before commencing management, the recording of blood pressure should be standardised. Due to hydrostatic pressure differences blood pressure should always be taken with the arm at the level of the heart. If the patient is less than 26 weeks gestation she should lie on her back, but if she is more than that she should roll her lower abdomen and hips 45° to her left to prevent compression of the inferior vena cava and aorta. The baumanometer cuff is then placed on the left arm with a pillow under the elbow and also under the abdomen if desired.

3.4 CARE DURING LABOUR

It is of utmost importance that a pre-eclamptic patient remains with a midwife all the time during labour. The midwife documents presence of oedema, high blood pressure, urinary output, results of urinalysis at the onset of labour, so that any deviation will be noted and medical opinion sought.

Attention is also paid to the patients' bodily hygiene at regular intervals. The patient is positioned on her side to prevent supine hypotension. Sedation or epidural analgesia is given as this relieves pain, reduces blood pressure and facilitates rapid caesarean section if the need arises. The midwife should encourage the mother to move her legs. If the mother is unable to do so, the midwife does the passive leg exercises to stimulate leg circulation. The mother is encouraged to void regularly. All specimens should be tested for protein, ketones and glucose, and results recorded (Wren and Lobo 1990:113).

Blood pressure and pulse rate are checked half-hourly. Respiration need to be observed hourly if there is pulmonary oedema and temperature should be taken hourly. The foetal heart rate should be recorded half-hourly with a Pinards stethoscope. A cardiotocograph should be used to make observations of the foetal heart continuous even during a contraction. When the second stage is imminent an obstetrician and a paediatrician should be notified. The second stage must be assisted to make it shorter.

Intravenous infusion is put up in consultation with the doctor and care must be taken not to over hydrate the patient. Medications used before the onset of labour are continued per doctors orders. Preparation for an episiotomy and/or forceps delivery or vacuum extraction are made. Ergometrine or syntometrine are never used during the third stage as these cause peripheral vascular spasm and an increase in blood pressure.

Recording is done properly. The presence of a paediatrician is important for prompt and appropriate care of the neonate. The baby is usually both preterm and small for dates, therefore is treated as a high risk baby in the preterm nursery (Oxorn 1986:987; Pearce and Steel 1987:98; Bennett and Brown 1989:298; Moodley 1990:78; Wren and Lobo 1990:111; Sellers 1993:1176).

Management of pre-eclampsia also includes specific therapy such as antihypertensive therapy. This is used where the blood pressure has been 160/110 mm Hg on two (2) successive readings at thirty (30) minutes intervals. Some of the antihypertensive drugs are indicated here as follows:

(i) **Hydralazine**

This drug causes a fall in blood pressure. It acts directly on smooth muscles of arteriolar walls to cause vasodilatation. Therefore, this does not cause a decrease in placental perfusion. It is given intravenously as absorption from muscles is delayed and erratic in pre-eclampsia. A dosage of 10 mg intravenously is given slowly with blood pressure recordings every five minutes thereafter. The dosage can be repeated twenty minutes later if necessary (Oxorn 1986:988; Wren and Lobo 1990:112; Sellers 1993:1173).

Anticonvulsant therapy also forms part of specific therapy in severe pre-eclampsia where there are signs of cerebral oedema or hyperreflexia and/or clonus. The good example which is widely used in pre-eclampsia is diazepam. This drug is rapidly transferred across the placenta and causes loss of baseline variability of the foetal heart rate. Therefore the baby may have hypoglycaemia, hypotonia and hypothermia. All these adverse effects must be anticipated and properly handled. Otherwise there are no long-

term detrimental effects on the baby. The suggested dose necessary to prevent eclamptic fits is 10 mg to 20 mg intravenously. Diazepam is effective at preventing and treating fits which carry a 30% risk of foetal mortality (Pearce and Steel 1987:99; Wren and Lobo 1990:112).

Oxorn (1986) and Wren and Lobo (1990) suggest that treatment of pre-eclampsia should continue at least 48 hours post delivery.

Bennett and Brown (1989) specifies that blood pressure should be taken at least four hourly for 24 hours after delivery and if proteinuria has been present it should be checked once or twice daily until it is clear. Urinary output should also be recorded. Proper and careful observations are necessary immediately after delivery as blood pressure levels may fluctuate during the third stage of labour.

3.5 CONCLUSION

Management of pregnancy-induced hypertension relies very much on early recognition of the diseases, early treatment with self-care of the client, rest and appropriate diet inclusive admission into a hospital at 37 weeks gestation, and careful monitoring during labour as blood pressure fluctuates at this time, induction of labour if it does not occur spontaneously then careful observation post delivery as the condition may complicate with convulsions post delivery. The next chapter deals with the theoretical framework which forms the basis for describing how certain variables are related to each other.

CHAPTER 4

THEORETICAL FRAMEWORK

4.1 ERNESTINE WIEDENBACH'S MODEL

4.1.1 Introduction

When the researcher who is a practitioner looks at theory, the goal is to develop and refine an intellectual structure, by which the complex array of facts encountered can be understood. The researcher's principal interest in the utilisation of theory is to indicate how the choice of the theory will explain the variables under investigation.

It is therefore important in this study to indicate how the basis of Ernestine Wiedenbach's theory is used to develop the knowledge base of the study.

Theory helps to recognise patterns and relationships that aid in bringing order to the reality with which we are confronted, that is, to compare, evaluate and relate data. The assumption is that the researcher has acquired some knowledge on the field of investigation, in this case, Midwifery. Therefore, every aspect of the theory applied should be followed by some explanation of how it relates to the researcher's own investigation.

Wiedenbach developed this model out of forty (40) years of experience in nursing, especially within midwifery settings. As a result of her own experience she began asking about the nature and practice of nursing, and her experience as a teacher/educator made the quest to find answers to her questions about nursing more imperative.

The following statement indicates how Wiedenbach views nursing.

“People may differ in their concept of nursing, but few would disagree that nursing is nurturing or caring for someone in a motherly fashion” (Fitzpatrick and Whall 1983:67).

While Wiedenbach’s model is one of the earlier nursing models, the researcher found it appropriate to use this model because of Wiedenbach’s experience in maternity settings.

4.2 WIEDENBACH’S BASIC CONCEPTS

It is important to briefly, describe basic concepts person, health and nursing in the context of this model. The fourth (4th) component is environment, which she does not necessarily describe. However, she supports the World Health Organisation’s (WHO’s) definition of health as a state of physical, mental and social well being and not merely the absence of disease and infirmity. Later in the chapter an attempt is made to link these concepts to the variables of the study.

4.2.1 Nursing

Wiedenbach defines nursing as a helping art. It is a deliberate blend of thoughts, feelings and overt actions ... practised in relation to an individual who is in need of help. The responsibility of the nurse is that of focussing on the patient’s perception of his/her condition. Nursing is therefore patient - centred, designed to assist the patient when the individual perceives a need for assistance.

4.2.2 Person

Wiedenbach defines person or man as a functioning being. She states that the ability to cope is something that is inherent in a human being. Every human being possess a unique potential, strives towards self direction and needs stimulation. She believes that whatever the person or individual does at a particular moment represents her or his best

judgement. The person in Wiedenbach's model is a physically - physiologically - psychologically reacting being whose responses may be self willed or involuntary. The individual is seen as competent and able to determine if a need for help is being experienced. Nurses, or care givers need to intervene only when there is an obstacle which prevents the individual from satisfactory coping with demands being placed upon him or her by the situation. Therefore Wiedenbach uses the person as a unified whole and that obstacles in one area influence the quality of coping of the entire individual.

4.2.3 Health

The concept of health is not specifically addressed in Wiedenbach's model, but she supports the World Health Organisation's (WHO's) definition of health that it is a state of complete physical, mental and social well being and not merely the absence of disease or infirmity (George 1985:102).

4.2.4 Environment

In as far as environment is concerned, while Wiedenbach does not directly define the concept, she sees an environment as a component of the realities in which the care is given.

4.3 RELATIONSHIP OF BASIC CONCEPTS

In this model there is an obvious interplay between clinical nursing and the basic concept of person. Nursing exists for the purpose of meeting the need for help as experienced by a person. A person, a normally functioning capable being calls upon nursing when obstacles interfere with the ability to cope and a need for help is experienced. The practice, art and philosophy of clinical nursing are the means by which the nurse intervenes to meet the need for help.

The environment comes into play in this model only when it may contain or produce an obstacle resulting in a need for help. On the other hand environment may contain or produce the elements necessary for providing care. While the concept of health does

not interrelate with Wiedenbach's component, it is not always clear that the need for help is health related.

According to Wiedenbach the nursing process includes the following steps:-

- identification of need for help through observation. The need for help must be recognised or perceived by the patient, before nursing care begins. This is an essential component since nursing exists for the purpose of helping the individual. The concepts also relate to the nurses area of responsibility in that the identification of the need for help must come from the patient's experience. In other words the patient must perceive the need for help before the nurses can intervene.

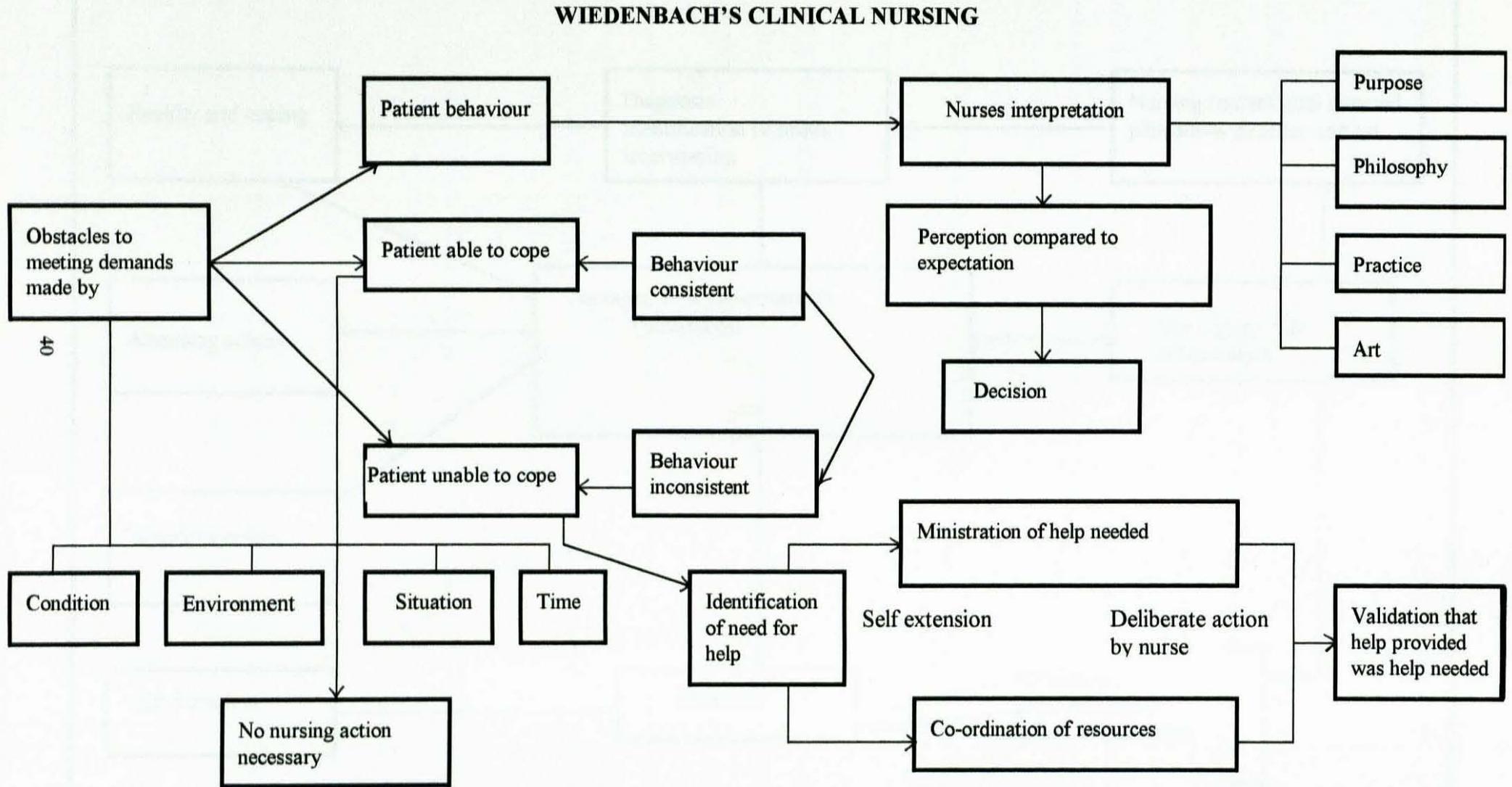
- Ministration of help needed. This could be taken as nursing practice which relates to that activity which results from a need for help as perceived by the patient and the nurse. The practice of nursing is directed towards meeting the patients' need for help. In addition to ministration, co-ordination of resources could be an important activity.

- Validation

Will be a process of evaluating whether the help provided was the help needed.

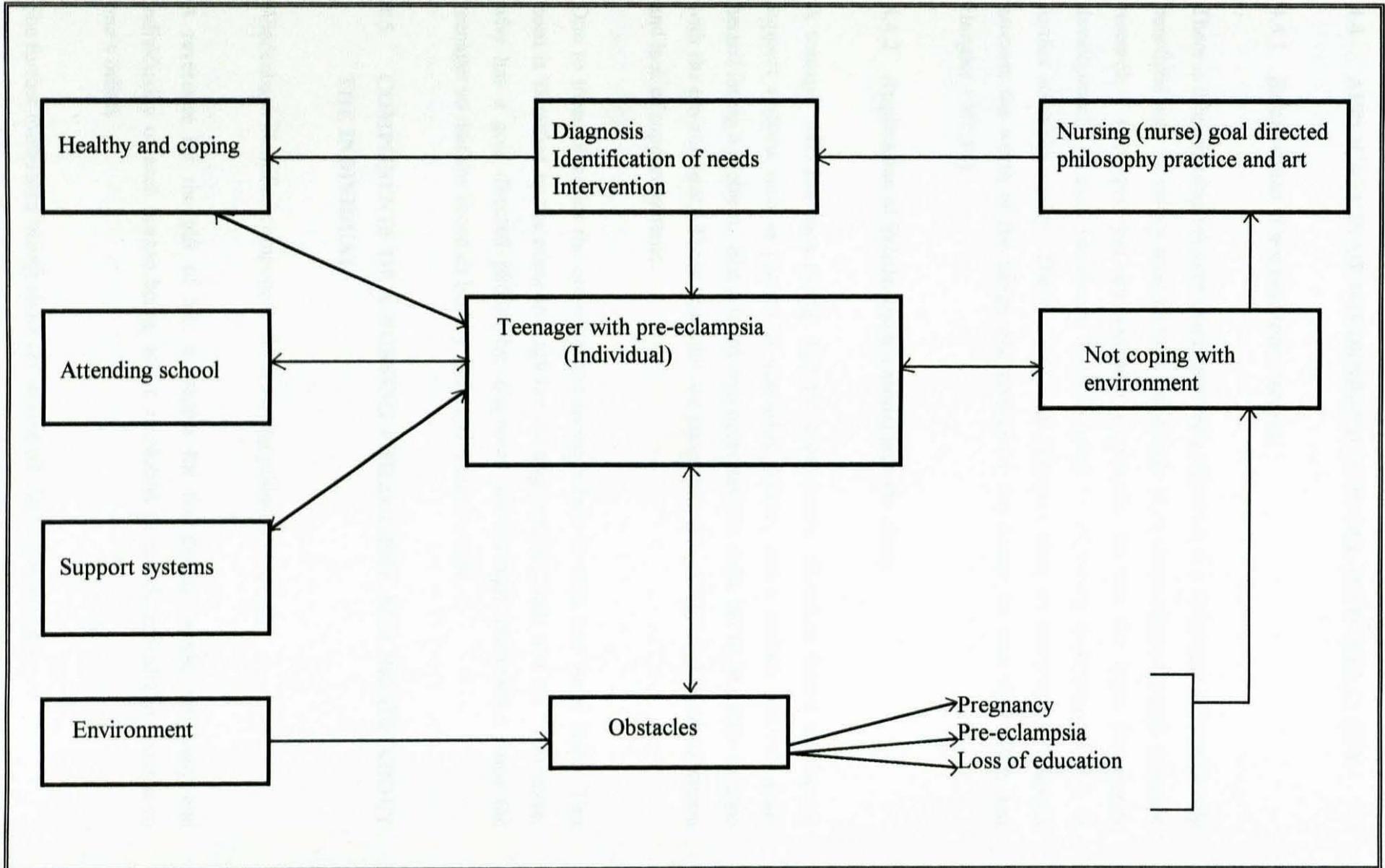
Wiedenbach's nursing process may be modified by using the nursing process steps, namely, assessment, planning, implementation and evaluation to render quality care during labour in a teenager with pre-eclampsia. In order to give good care during labour, assessment and planning steps should be done thoroughly. For instance, a pre-eclamptic teenager would need proper assessment during the antenatal period, as well as planning at that level. The plans reached at the time of antenatal care, could be implemented and evaluated so as to do the best that is possible to prevent the potential complications.

FIGURE 4.1: INTERRELATIONSHIPS OF THE CONCEPTS IN WIEDENBACH'S MODEL



Adapted from Fitzpatrick & Whall 1983:78

FIGURE 4.2: APPLICATION OF WIEDENBACH'S MODEL TO THE STUDY



4.4 APPLICATION OF WIEDENBACH'S MODEL INTO THE STUDY

4.4.1 Relationship of a model into research

There is a relationship between theory and research which is a reciprocal and a mutually beneficial one. A theory must be built inductively from observations through scientific research. Concepts that are validated empirically become the basis for theory development. In turn, the theory must be tested by subjecting deductions from it to further scientific inquiry. Theory guides and generates ideas for research and research assesses the worth of the theory and provides a foundation for new ideas (Polit and Hungler 1987:84).

4.4.2 Application of Wiedenbach's model into the study

A teenager who has been coping with the environment, attending school and having support systems such as parents or guardians, friends, and a partner suddenly finds herself facing a problem. She is faced with obstacles that make her to be unable to cope with the environment. These obstacles are pregnancy, pre-eclampsia, loss of education and lack of support systems.

Due to these obstacles the pre-eclamptic teenager fails to cope and needs help. This need is identified by the nurse through her nursing practice, skills and art. The nurse, who has a goal directed philosophy, diagnoses and through intervention helps the teenager so that she becomes healthy again and is able to cope.

4.5 COMPONENTS OF A NURSING PHILOSOPHY AND BELIEF ABOUT THE INDIVIDUAL

Wiedenbach identified components for a nursing philosophy namely:

A reverence for the gift of life; a respect for the dignity, work, autonomy and individuality of each human being; and a resolution to act dynamically in relation to one's beliefs.

She further formulated beliefs about the individual. She believes that:-

- ◆ each human being is endowed with unique potential to develop within himself the resources that enable him to maintain and sustain himself;
- ◆ the human being basically strives towards self direction and relative independence, and desires not only to make the best use of his capabilities and potentials but to fulfil his responsibilities as well;
- ◆ the human being needs stimulation in order to make the best use of his capabilities and realise his self worth;
- ◆ whatever the individual does, represents his best judgement at the moment of doing it (George 1985:96).

4.6 PRACTICAL APPLICATION

A pre-eclamptic teenager has all these characteristics and these should be considered and respected, so as to achieve good quality of midwifery care. Once the nurse has realised that the patient has autonomy and uniqueness, it is likely that it will be easy to work on a plan of care with the patient. The plan of care will specify direction to activity and also suggest the kind of behaviour needed to carry out her practice according to the objectives she has specified.

When dealing with a pre-eclamptic patient the nurse should remember that the patient has personal attributes, problems, capabilities and aspirations. The patient has the ability to cope with problems being experienced. When this person is sick she is vulnerable, she must now cope with the nurses action on her. The patient becomes dependent on the nurse for some aspects of nursing care. The patient undergoes the risk of losing her individuality, dignity, worth and autonomy.

4.7 REALITIES IN NURSING CARE

4.7.1 Introduction

Ernestine Wiedenbach's model within the prescriptive theory, identifies three (3) factors:-

- central purpose, which the practitioner recognises as essential to the particular discipline
- the prescription for the fulfilment of the central purpose and the realities in the immediate situation that influence the fulfilment of the central purpose. For purposes of this study a brief explanation will be made on the realities of the situation in which nursing is provided.
- the realities of the situation in which nursing care is to be provided. Realities consist of physical, physiological, psychological, emotional and spiritual factors that are in the situation in which nursing care is given.

4.7.2 The agent

She refers to the agent as the practising nurse. This nurse has personal attributes, capabilities, capacities, commitment and competence in nursing. This is also applicable in the study where midwifery care is given. It is the nurse who has different characteristics, and takes care of the pre-eclamptic patient. The nurse has responsibilities to carry out when looking after the pre-eclamptic teenager. She has to specify objectives of practice in terms of behavioural outcomes that are realistic and achievable. She has to practice according to her objectives. She has to engage in activities which will help in the improvement of nursing practice.

4.7.3 The recipient

Wiedenbach refers to the patient as the recipient of nursing actions. A pre-eclamptic teenager receives care from agents who are nurses, doctors, and other health personnel. The patient also has her own characteristics as a unique person. She needs to cooperate so that the goals set can be achieved.

4.7.4 The goal

The goal is referred to as the desired outcome the nurse wishes to achieve when giving midwifery care to pre-eclamptic teenagers. The goals to be achieved are stipulated. For

instance in a pre-eclamptic patient, the goal to be achieved is to prevent the disease from complicating into eclampsia, and to deliver a live baby and have satisfactory conditions for the mother and the baby after delivery.

4.7.5 The means

This comprises of activities and devices through which the nurse is enabled to attain her goals. The means include skills, techniques, procedures and devices that may be used to facilitate the nursing practice. A pre-eclamptic patient will also be cared for using the means so as to achieve the planned goals.

4.7.6 The framework

This consists of human, environmental and organisational facilities within which nursing is practiced. The framework is composed of all factors and facilities in the situation that affects the nurse's ability to attain the desired results. A pre-eclamptic patient is nursed within this framework. These should be recognised and dealt with appropriately, so that they may not prevent the achievement of goals.

4.8 CONCLUSION

Wiedenbach's theory directs nursing towards a philosophical approach. The nurse's philosophy about value and worth of the patient directs her behaviour towards the care of her patient. She views a nurse as a loving, caring and helping individual. She believes that if the nurse is committed to nursing values, life and dignity of human beings, then she will be able to provide quality nursing care. The researcher uses this as a frame of reference in providing care for a pre-eclamptic teenager to save the lives of both the mother and the baby.

CHAPTER 5

METHODOLOGY

5.1 INTRODUCTION

In this chapter the methodology used in investigating factors associated with pre-eclampsia in teenagers at Ngwelezane Hospital as well as the quality midwifery care during labour is presented. The discussion includes the research approach, the nature and development of the research instrument, method of data collection, the population, sampling and the method of data analysis and presentation.

5.2 RESEARCH DESIGN

When designing a research project the particular aim of the research is to direct how the investigation is going to be undertaken. Descriptive studies are of considerable value in social research. They can be used to investigate people's behaviour and attitudes. Their purpose is to observe, describe and document relevant aspects of a phenomenon. They do not focus on explanation of relationships among variables (Polit and Hungler 1991:175).

A descriptive exploratory design was undertaken. This design was selected because it accurately describes the characteristics of an individual, a situation or a group, or examines the frequency with which an event occurs or is associated with another event (Seaman and Verhonick 1982:151).

5.3 SCOPE AND DELIMITATION

The study was conducted at Ngwelezane Hospital. Ngwelezane Hospital is a regional hospital situated in Health Region H, North of Tugela River in KwaZulu-Natal Province. Within this region there are ten (10) community (District) hospitals, fifteen (15) satellite clinics and sixty three (63) mobile clinic points. All these areas refer their cases which need further and expert management to Ngwelezane Hospital (see annexures D and E - KwaZulu-Natal Province).

5.4 SAMPLING PROCEDURE

The target population of this study were pregnant teenagers who were admitted at Ngwelezane Hospital from Region H. Therefore there was a need to choose a sampling method suitable for the study.

5.4.1 Type of sampling

Accidental or sample of convenience was used. Convenience method of sampling permits the use of most readily available group of subjects (Polit and Hungler 1987:209).

This type of sampling was chosen because the target population consisted of individuals with specific traits who were difficult to identify by ordinary means (Polit and Hungler 1987:210). In this case the target population were pregnant teenagers with pre-eclampsia. Conducting this study took long because the subjects were interviewed as they were admitted and became available. Care during labour was also assessed through accidental sampling as they went into labour and became available for assessment.

5.4.2 Period of collecting data

During the period of study starting from January to September 1994, forty (40) subjects were obtained and were interviewed to get information on factors associated with pre-

eclampsia. During the following three (3) months starting from October to December 1994 eight (8) subjects were observed during labour to assess the quality of care. The researcher used participant observation with the aid of an observation checklist. Eight (8) subjects who were used were not part of forty (40) subjects who were interviewed. A total of forty eight (48) clients participated in the study.

5.4.3 Method used to check quality care during labour

For the purpose of assessing the quality care given to pre-eclamptic teenagers in labour the researcher was informed by the midwife in charge whenever there was a pre-eclamptic patient admitted into the labour ward. It was only possible to include those patients that were admitted during the day and early evening. Those who fell into labour after 22h00 did not form part of the sample. The reason being that the researcher could not observe them as they progressed towards delivery.

5.5 DESIGN OF THE INSTRUMENT

5.5.1 Interview schedule

A structured interview schedule was used. It was divided into: personal, social and economic factors, diagnosis of pregnancy, signs and symptoms of pre-eclampsia and dietary factors. The first section of the instrument dealt with factors such as social, family and economic factors which could contribute into the development of pre-eclampsia. The second section was on diagnosis of pregnancy, signs and symptoms of pre-eclampsia as well as dietary factors as all these could have an influence on the development and progress of the disease.

Close ended and open ended questions were asked. Close ended questions had dichotomous items requiring yes or no answers to facilitate the gathering of facts. There were also multiple choice questions with four (4) to five (5) alternatives to gain more information from respondents and to measure the intensity of feelings of respondents.

The interview schedule consisted of a total number of twenty seven (27) items. An informal interview approach was used. The interview session took about 10 to 15 minutes with each respondent. The respondents were interviewed by the researcher using one interview schedule.

5.5.2 Observation checklist

A checklist was developed in the form of an observation checklist to evaluate the quality of midwifery care given to the affected teenagers during labour. It was divided into social care, psychological care, maternal and foetal care during labour. The total items of the observation checklist were 41. The checklist was completed by the researcher following observation, review of records and discussion with care givers.

5.6 PERMISSION FOR THE STUDY AND PROTECTION OF HUMAN RIGHTS

Permission to conduct the research project was obtained from the Senior Medical Superintendent of the Ngwelezane Hospital who is also a Regional Medical Superintendent. Informed consent was obtained from the subjects. Confidentiality and anonymity was maintained right through the study by using the patient's registration numbers only and not their names. The purpose of the study was explained to the participants and the reason why their participation was essential. They were also assured that their participation was free and that they had an option not to participate.

5.7 PILOT STUDY

The interview schedule which had both close ended and open ended questions was tested on ten (10) subjects who were available between the periods, January 1993 and June 1993. The aim of the pilot study was to test the instrument, identify problems and make improvements where necessary before the actual study was conducted. Testing the instrument helped the researcher because she was able to restructure questions which confused the participants. Participants obtained were between the ages 15 to 19 years. None of these subjects were to participate in the main study.

5.8 DATA ANALYSIS

Data was analysed by the researcher. Most of the questions in the interview schedule were open ended, and were answered with one or more sentences. Therefore those were to be read and arranged accordingly by the researcher manually. Data were to be presented with the use of tables, bar graphs, histograms, pie graphs and then supported with a narrative explanation.

5.9 CONCLUSION

In this chapter the researcher explains the research methodology that was used. A descriptive exploratory design was used to collect data through interviews. The researcher did interviews personally, and data collected is analysed and interpreted in the next chapter.

CHAPTER 6

DATA ANALYSIS: FACTORS ASSOCIATED WITH PRE-ECLAMPSIA

6.1 INTRODUCTION

Section 1 of data analysis is dealing with the factors associated with pre-eclampsia. It covers 27 items which include all items in the interview schedule that were used to elicit information from pre-eclamptic teenagers.

6.2 SECTION 1

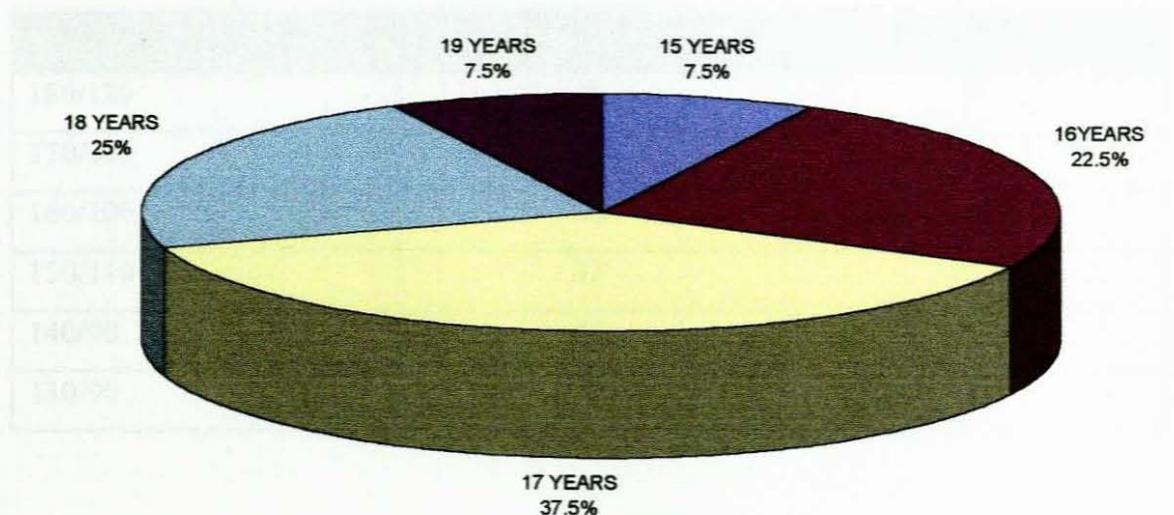
6.2.1 Personal factors (Items 1.1 - 1.5)

ITEM 1.1: REGISTRATION NUMBERS

The purpose of using registration numbers during the time of interviewing was to ensure anonymity and confidentiality of the respondents. Instead of using names these registration numbers were used. Individuals who divulge their personal views and affairs should be protected from public disclosure. In face to face situations in which anonymity is difficult, the researcher should offer participants a guarantee of confidentiality. This means that the researcher promises that any information that the participant divulges will not be publicly reported. It is the researcher's responsibility to ensure that such pledges of confidentiality are strictly honoured (Polit and Hungler 1987:23).

ITEM 1.2: AGE

FIGURE 6.1: PERCENTAGE OF TEENAGERS ACCORDING TO AGE



Among the respondents, the majority of the teenagers with pre-eclampsia were aged 17 years (37.5), followed by 16 years (22.5%), then 18 years (25%) and lastly 15 years (7.5%) and 19 years (7.5%). The maturation process during adolescence involves the formation of a stable self-image, a sexual identity and a concept of self as separate from parents. This process does not occur in an orderly fashion, since the adolescent does not always see herself as a woman capable of fertility. Therefore pregnancy occurs as a shock to the adolescent, and this could be contributory to pre-eclampsia. These young adolescents experience feelings of despair, worthlessness, chronic failure in school, depression and social isolation (Emans and Goldstein 1990:507). These results support the view that pre-eclampsia is high in nulliparas. Butler and Alberman (1969) discovered that the lower the age the higher the incidence of pre-eclampsia.

ITEM 1.3: BLOOD PRESSURE

TABLE 6.1: STATE OF BLOOD PRESSURE DURING THE TIME OF INTERVIEW

BLOOD PRESSURE	N=40	PERCENTAGE
180/120	2	5
170/100	1	2.5
160/100	10	25
150/110	11	27.5
140/90	10	25
130/90	6	15

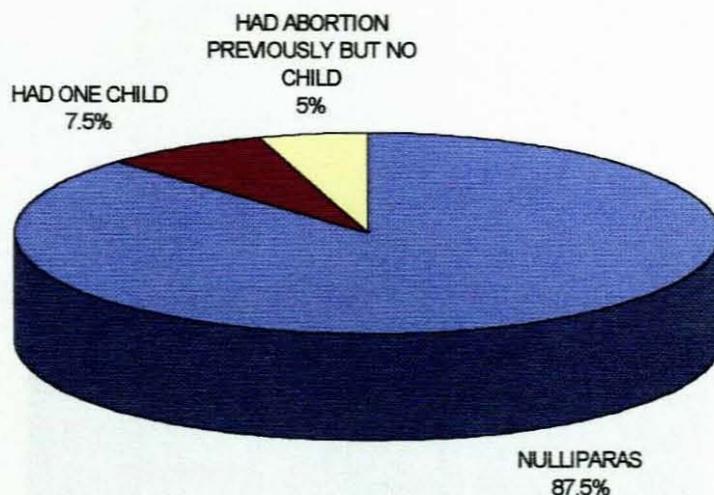
Blood pressure was checked to assess the severity of pre-eclampsia. The majority, that is 60% (24) of clients were at high risk and only 15% (6) of the respondents had mild pre-eclampsia. Mild pre-eclampsia is characterised by a blood pressure of 140/90, proteinuria and in some cases mild oedema (Andersch, Svensson & Hansson 1990:124). Beischer and MacKay (1986) maintain that patients are at risk if diastolic pressure is 100 mm Hg or above.

ITEM 1.4: RESIDENTIAL AREA

As the Ngwelezane Hospital serves a large community in KwaZulu-Natal, there is no one area where patients with pre-eclampsia were concentrated, but numbers show that patients were from different areas. The majority that is 90% (36) of patients came from the rural communities and 10% (4) came from a township. This result could be associated with inavailability of health services as well unacceptability of pregnancy in rural areas where tradition is still uppermost.

ITEM 1.5: PARITY

FIGURE 6.2: PARITY OF RESPONDENTS

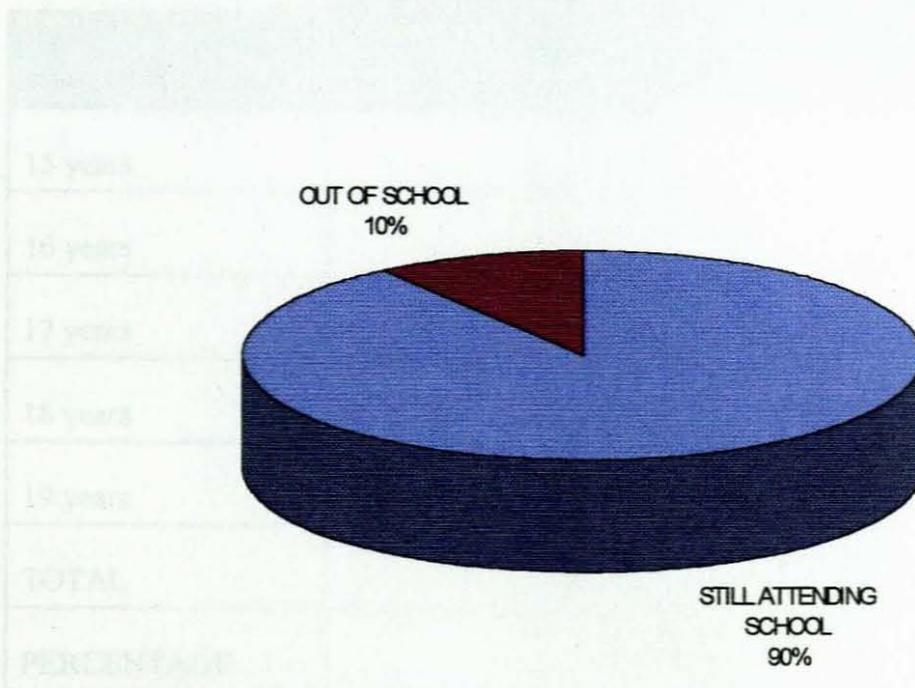


From the total number of forty (40) subjects who formed the sample 87.5% (35) were nulliparas, 5% were teenagers who had an abortion previously and were pregnant for the second time, 7.5% (3) were teenagers who had one child and pregnant for the second time. Primiparas have a higher risk of pre-eclampsia at all ages than multiparas (Dennis, McFarland and Hester 1985:456). The higher percentage of nulliparous teenagers supports the view of (Moodley 1991:74) that pre-eclampsia is commoner in teenage mothers.

6.2.2 Social factors (Items 2.1.1 - 2.1.2)

ITEM 2.1.1 SCHOOLING

FIGURE 6.3: PARTICIPANTS ATTENDING SCHOOL



According to figure 6.3, 90% (36) of clients were still attending school when they became pregnant and 10% (4) were already out of school. It stands to reason that most teenagers become pregnant while still at school.

2.1.1 Class level

TABLE 6.2: CLASS LEVEL AT DIFFERENT AGES

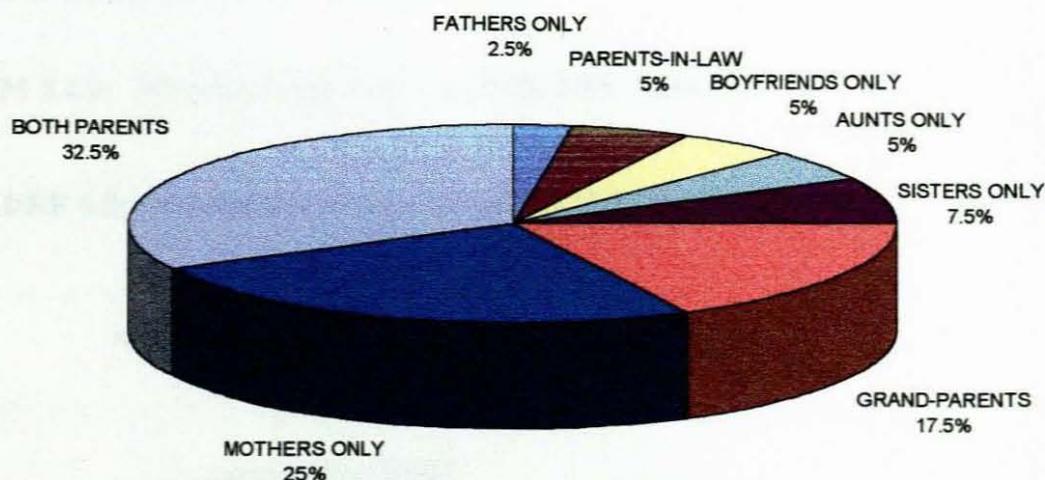
AGE OF CLIENT	STANDARD LEVELS			
	1-2	3-5	6-8	9-10
15 years	-	1	2	-
16 years	-	4	9	1
17 years	-	1	6	3
18 years	-	2	2	3
19 years	-	1	2	-
TOTAL	-	9	23	8
PERCENTAGE	-	22.5	57.5	20

This table shows that the clients who were still attending school were at different levels of education at different ages. For instance, clients who were in standard 3 to standard 5 were between 15 and 19 years of age, and formed 22.5% (9). Those who fell pregnant while doing standard 9 and 10 were between 16 and 19 years and formed 20% (8). A larger percentage (57.5%) of the respondents was still between standards 6 and 8. This is a critical time for adolescents when they do not think that they may become pregnant, they deny their fertility. Young teenagers are especially reluctant to destroy the spontaneity by planning ahead and acknowledging their own sexuality (Emans and Goldstein 1990:507). According to this table 6.2 the majority 57.5% (23) of teenagers got pregnant while in classes between standard 6-8. In standard 3 to 5 the percentage

dropped to 22.5% (9) at standard 9 and 10 there were only 20% (8). At the age of 16 years, most children are discovering their identity, breaking away from parental control.

ITEM 2.2.1: FAMILY HISTORY

FIGURE 6.4: PERSONS STAYING WITH TEENAGERS AT HOME

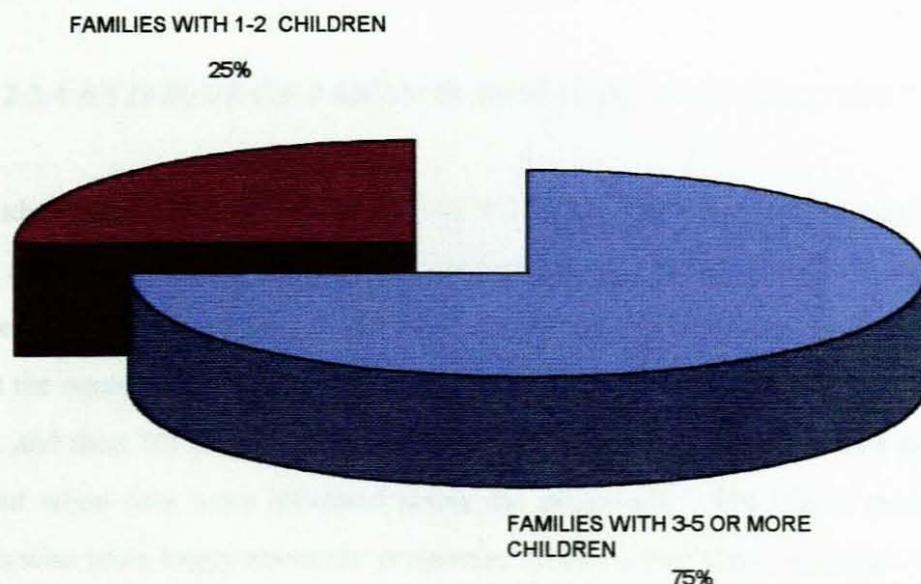


According to figure 6.4, analysis showed that 32.5% (13) of the clients stayed with both parents, 25% (10) stayed with mothers only, 17.5% (7) stayed with grand-parents; 7.5% (3) stayed with their sisters, 5% (2) stayed with their aunts, 5% (2) stayed with their boyfriends, 5% (2) stayed with their parents-in-law and 2.5% (1) stayed with their fathers only. Mostly 57.5% (23) participants stayed with parents. Those who stayed with grand-parents, aunts, sisters were illegitimate children who were left by their mothers when they got married to other persons and not their fathers. Those who stayed with their mothers only, did so because their fathers were dead or the parents were divorced. Those who stayed with boyfriends only had either no parents or relatives to stay with and those who lived with their parents-in-law were those who were

chased away from their homes because of being pregnant. Though culturally with most nationalities it is not acceptable that female children stay with their fathers only, the research shows that one teenager stayed with her father only as a result of divorce. Culturally, fathers, are not responsible for teaching their girls moral behaviour and sexuality, but this is done by their mothers or elder female relatives. It is unlikely that a father would recognise that his daughter was pregnant and then advise her to attend the antenatal clinic in time. This could aggravate the condition as the daughter may also be afraid to tell her father about the pregnancy.

ITEM 2.2.2: NUMBER OF SIBLINGS IN THE FAMILY

FIGURE 6.5: NUMBER OF CHILDREN IN THE FAMILY



The number of children in the families of the respondents ranged between three (3) to five (5) in 75% (30) of the families. In one of the families the total number of children was nine (9). In 25% (10) of the respondents, siblings ranged between one (1) and two.(2) In large families pregnancy of the teenagers could have been due to lack of guidance of teenagers by the family members. A teenager who is neglected as a result of

a large family could remain with the disease progressing with no advice to attend the antenatal clinic. This could make it difficult to diagnose pre-eclampsia in its early stages.

ITEM 2.2.3: REACTION OF PARENTS/GUARDIANS TOWARDS PREGNANCY

The majority 52.5% (21) of parents/guardians were very angry when they were informed that their daughters were pregnant, 17.5% (7) showed their anger by scolding and shouting at their daughters; 7.5% (3) did not comment about the pregnancy; 7.5% (3) did not know that their daughters were pregnant and 2.5% (1) of the respondents were severely beaten up. This shows that teenagers were treated with no sympathy. This added to their feelings of depression, despair and worthlessness. The only group that was happy about the pregnancy were parents-in-laws and this formed 5% of the table.

ITEM 2.2.4 ATTITUDE OF PARTNER TOWARDS THE PREGNANCY

The study reveals that more than half 62.5% (25) of the respondents partners were excited about the pregnancy, 20% (8) were negative, angry and denied the responsibility of fatherhood, 12.5% (5) accepted the pregnancy but blamed the girls for failing to prevent the occurrence of pregnancy, and complained that they were not yet ready to be fathers, and then 5% (2) of the respondent's partners showed no response and did not comment when they were informed about the pregnancy. The higher percentage of partners who were happy about the pregnancy confirms that many teenagers would like to prove if they are fertile, but do not think of the possible consequences that unplanned pregnancy could bring (Emans and Goldstein 1990:508).

ITEM 2.2.5: DID ANY MEMBER OF THE FAMILY SUFFER FROM PRE-ECLAMPSIA

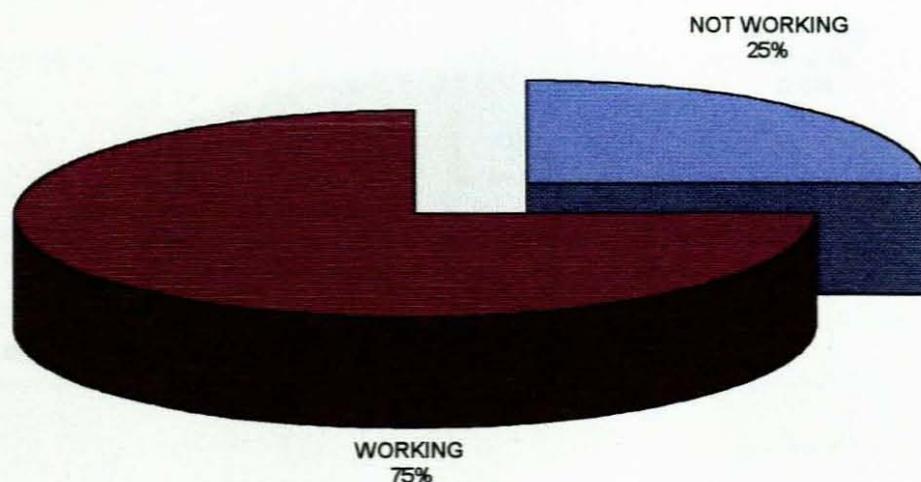
Researchers such as Chesley *et al* 1968; Pritchard *et al* 1985; Moodley 1988; Remich and Youngkin 1989 and many others maintain that pre-eclampsia runs in families. This

was supported in this study since 20% (8) of the respondents had pre-eclampsia in their families. Nevertheless 80% (32) of the respondents did not have anybody in the family suffering from pre-eclampsia. While heredity is a factor, in terms of this study it was not a major cause.

6.2.3 Economic factors

ITEM 2.3.1: IS YOUR PARENT/GUARDIAN WORKING?

FIGURE 6.6: NUMBER OF PARENTS/GUARDIANS WORKING



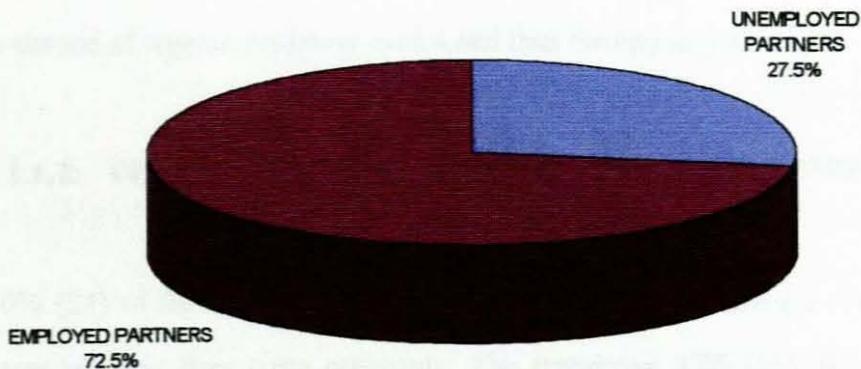
Data analysis showed that 75% (30) of parents/guardians of the respondents were working and 25% (10) were unemployed. This shows that parents/guardians could afford the clinic expenses. For those respondents who had parents or guardians who were not working this could be a contributory factor that made these participants attend the antenatal clinic late thus they were not diagnosed early.

ITEM 2.3.2: ARE YOU WORKING

The participants were all 100% (40) found to be unemployed. This indicates the financial problem they had which probably also contributed to their attending the antenatal clinic late and thus prevented them the opportunity to be diagnosed early and then be treated early for pre-eclampsia.

ITEM 2.3.3: IS YOUR PARTNER WORKING

FIGURE 6.7: NUMBER OF EMPLOYED AND UNEMPLOYED PARTNERS



Although the respondents were not working, 72.5% (29) of their partners were working and 27.5% (11) were not working. The majority of respondents' partners were working but the teenagers had financial problems, possibly due to lack of support from their partners. This was a disadvantage to a teenager who needed support at this stage.

6.3 SECTION 11

6.3.1 Diagnosis of pregnancy

ITEM 1.1.1: MONTHS/WEEKS WHEN PREGNANCY WAS DISCOVERED

The majority of respondents, 62.5% (25) recognised during the first twelve (12) weeks that they were pregnant. Then 37.5% (15) respondents recognised the pregnancy at the level of twelve to twenty four weeks. When they were asked why they did not recognise the changes caused by pregnancy to their bodies they said, maybe it was due to denial and disbelief that they could have fallen pregnant. Emans and Goldstein (1990:507) have found in their study of teenagers that the denial of fertility in adolescents is a common theme. They are unaware that with increasing gynaecologic age the chance of regular ovulatory cycles and thus fertility is greater.

ITEM 1.1.2: VISIT TO DOCTOR OR CLINIC TO CONFIRM PREGNANCY

Only 60% (24) of the respondents reported to the doctor or visited a clinic as soon as they suspected that they were pregnant. The remaining 40% (16) did not report to anyone for the reasons given in the next item. They started to attend antenatal care late.

ITEM 1.1.3: REASONS FOR NOT REPORTING

The 40% (16) of the respondents who did not report the pregnancy to anyone had the following reasons:-

12.5% (2) had no reasons for not reporting;

37.5% (6) did not believe that they were pregnant, in other words they were not sure;

25% (4) were sure about the pregnancy, but had no money to cover the doctors or clinic expenses. The pregnancy was not accepted at home and therefore nobody was prepared to give them money;

12.5% (2) were scarred and also embarrassed that they could meet their schoolmates on the way to the clinic. They would not like to be seen pregnant;

12.5% (2) were afraid of parents. They did not even want to talk about whatever pertained to pregnancy and moreover they were hiding by all means.

The reasons that were expressed by the participants show that teenagers undergo a stage of denial and disbelief that they are pregnant, in their early weeks. They are also frightened to face their parents. This puts them at a disadvantage and should they develop early signs of pre-eclampsia it is difficult for them to be diagnosed early and be treated.

ITEM 1.1.4: EMOTIONAL REACTION TOWARDS PREGNANCY

The majority 82.5% (33), expressed that they were upset, angry and blamed themselves for becoming pregnant. The remaining 17.5% (7) accepted the pregnancy and some were happy about it.

From the 17.5% (7) who accepted pregnancy a 16 year old respondent said that she was happy as she and her boyfriend planned the pregnancy. One 18 year old respondent had mixed feelings, on one side she was upset as she was unable to write her matric examinations but on the other hand she was excited that she could bear a child. One 19 year old said she was happy because she had failed her standard 10 three times and she wanted a reason to hold on to, so that she did not have to go back to school. Teenagers who were positive toward pregnancies had different reasons for becoming pregnant.

Emans and Goldstein (1990) state that teenagers especially in early adolescence are prone to impulsive action and have a difficulty with a long range goals. The limitations

in cognitive development in a young adolescent makes it impossible for her to consider the consequences pregnancy could bring to her life. Reasons given by teenagers for getting pregnant show impulsive action (Emans and Goldstein 1990:507).

ITEM 1.1.5: WHEN DID YOU START ATTENDING ANTENATAL CLINIC

Data analysis showed that 45% (18) of the respondents started attending the clinic after the first trimester of pregnancy and the remaining 55% (22) started during the second trimester of pregnancy. Pre-eclampsia had already started by the time all these clients started attending the antenatal care clinic. Young teenage primigravidae are at high risk, but through ignorance, shame and illegitimate pregnancy they may not seek prenatal care until pre-eclampsia is severe (Pritchard 1985:539). It has been shown in this study that teenagers do not seek prenatal care in time, they wait until the disease is severe. Participants in this study had severe pre-eclampsia except one participant who had mild pre-eclampsia.

6.3.2 Signs and symptoms

ITEM 1.2.1: SUDDEN WEIGHT INCREASE

Not all patients with pre-eclampsia experience the signs and symptoms of pre-eclampsia at an early stage of the disease thus affording the teenager the opportunity of hiding the pregnancy from their parents, guardians, teachers or peers. In this item data analysis shows that 40% (16) of the affected teenagers experienced sudden weight increases and 60% (24) did not. Excessive weight gain in some women is the first sign. The characteristic of pre-eclampsia is the suddenness of the excessive weight gain rather than an increase distributed throughout gestation (Pritchard *et al* 1985:541; Reeder, Martin and Koniak 1992:1175).

ITEM 1.2.2: HEADACHES

In 70% (28) of the respondents headaches were reported during pregnancy and 30% (12) did not experience any headaches. Headaches occur in severe pre-eclampsia and may be an indication of cerebrovascular irritation and impending convulsions (Genest **et al** 1985:905).

ITEM 1.2.3: EPIGASTRIC PAIN

Data analysis showed that patients who experienced epigastric pain were 40% (16) and those who did not experience it were 60% (24). This is also a symptom of severe pre-eclampsia and is indicative of imminent convulsions.

ITEM 1.2.4: BLURRING OF VISION

Most of the clients 80% (32) did not have blurring of vision. Only 20% (8) experienced slight visual disturbance. This study reflected this sign as uncommon. As stated by Pritchard **et al** (1985) and Sellers (1993) this symptom is rare and uncommon. It ranges from slight blurring of vision to complete blindness.

ITEM 1.2.5: OEDEMA OF LEGS AND FEET

The majority 70% (28) of the clients had oedema of legs and feet. In pre-eclampsia oedema may or may not be present. If present it can be clinical or subclinical. An excessive weight gain in the second half of pregnancy could be indicative of an occult or subclinical oedema (Sellers 1993:1165).

FIGURE 6.8: PERCENTAGES OF PATIENTS WHO EXPERIENCED SIGNS AND SYMPTOMS OF PRE-ECLAMPSIA

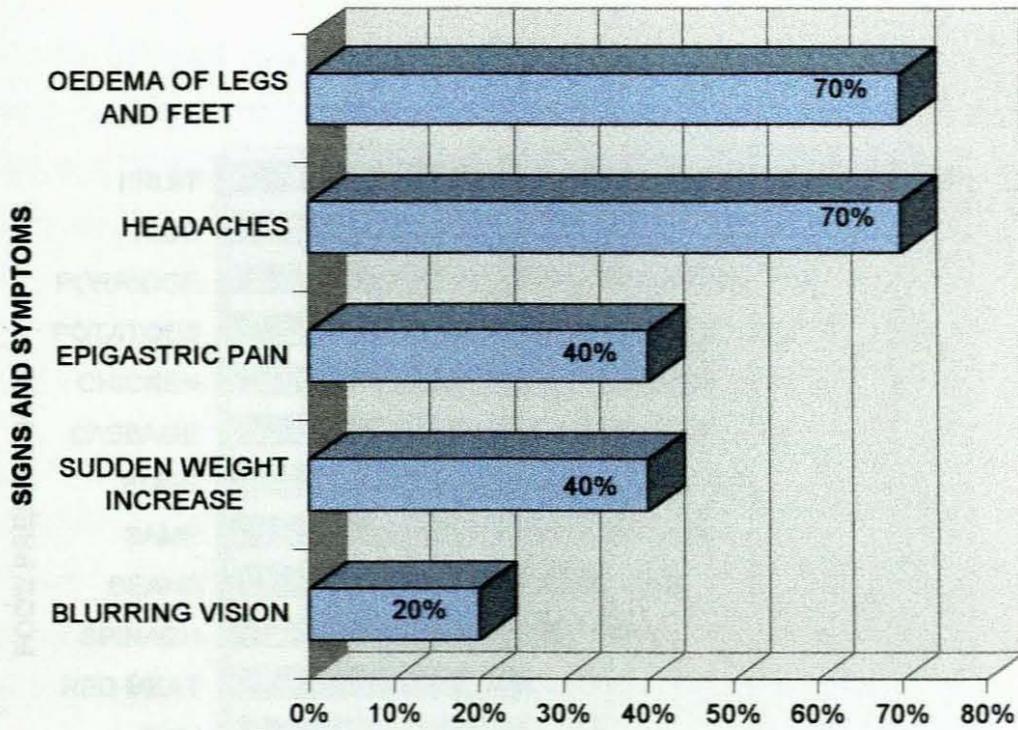


Figure 6.8 shows the number of patients in percentage, who experienced signs and symptoms of pre-eclampsia during pregnancy. According to some other studies that were reported by Akinkugbe (1982) in the Xth World Congress of Gynaecology and Obstetrics in 1982 some of the above signs presented for the first time after delivery. The studies confirmed the notion that some patients do not exhibit any obvious or alarming signs until very late.

ITEM 1.3: DIETARY FACTORS

FIGURE 6.9: FOOD PREFERENCES DURING PREGNANCY

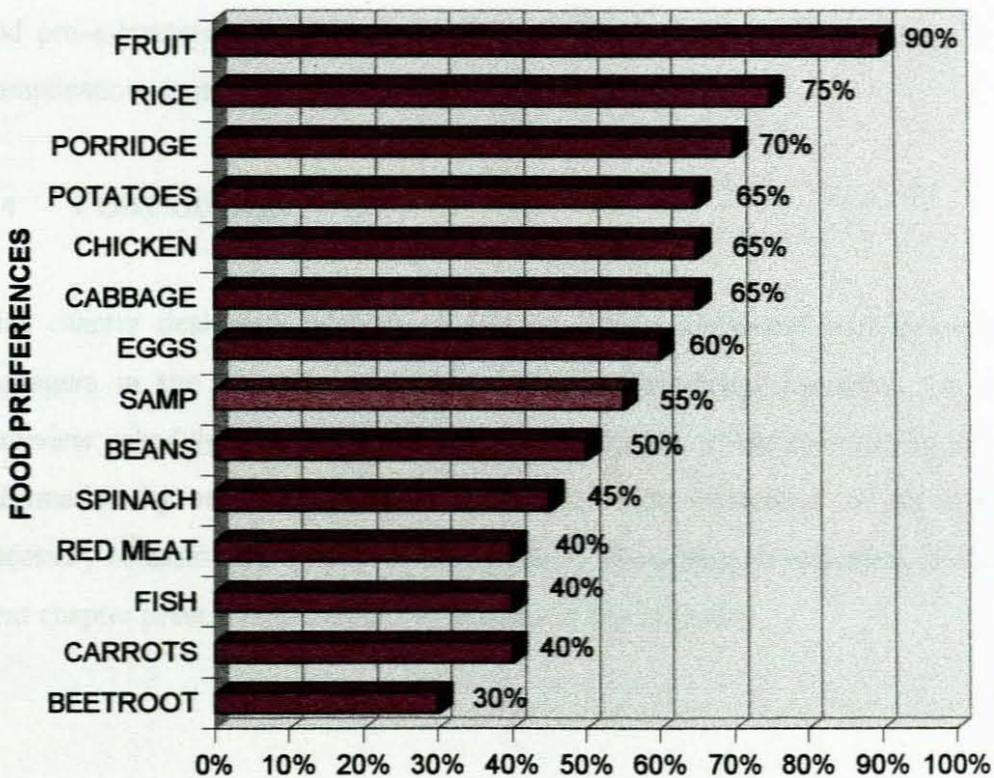


Figure 6.3 shows foodstuffs that were preferred and used during pregnancy by the pre-eclamptic teenagers, who were interviewed during the study. Most of the respondents (90%) (36) liked fruits. The popular carbohydrate containing foods were rice (75%)

(30), porridge (70%) (28), potatoes (65%) (26) and samp (55%) (22). The favourite vegetable eaten was cabbage 65% (26) and less than 50% (20) of the respondents took spinach, carrots and beetroot. The favourite meat was chicken (65%). Red meat and fish were eaten by less than 50% of the respondents. It is difficult to state whether diet is a significant contributing factor in pre-eclampsia. This aspect still needs further investigations.

Herrera (1993) did a study on nutritional factors and found that dietary factors such as calcium seem to affect blood pressure favourably and significantly reduce prematurity and pre-eclampsia risk. He associated nutritional support with decrease in perinatal complications including pre-eclampsia (Herrera 1993:31).

6.4 CONCLUSION

This chapter dealt with analysis of data on factors associated with pre-eclampsia in teenagers in the Ngwelezane Hospital in KwaZulu-Natal Province. A structured interview schedule was used and analysed in relation to various factors and previous information by other researchers. As stated in the objectives of the study, it was necessary to assess the quality of care given to pre-eclamptic teenagers in labour. The next chapter presents the findings in relation to this objective.

CHAPTER 7

DATA ANALYSIS: QUALITY MIDWIFERY CARE OF PRE-ECLAMPTIC TEENAGERS DURING LABOUR

7.1 INTRODUCTION

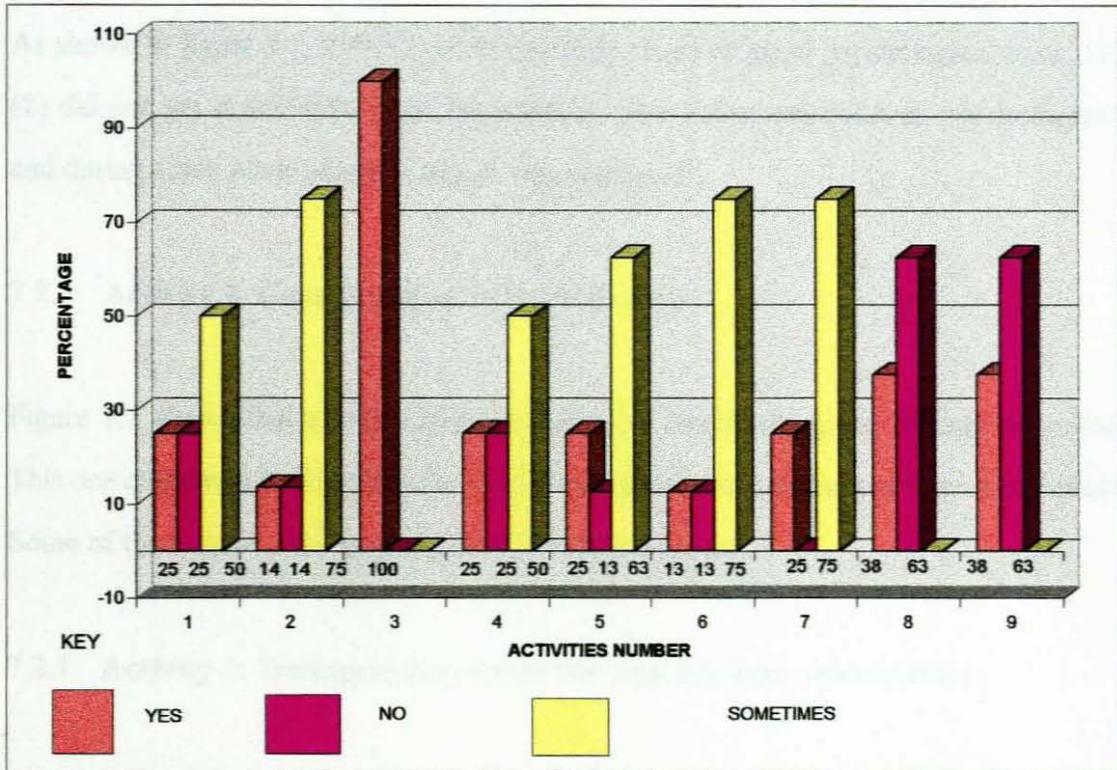
In this section analysis, presentation and discussion of findings is presented on information gathered from a follow up participant observation on the quality of care given during labour to the teenagers who were affected by pre-eclampsia. The patients were eight (8) in number. The observation checklist contained items that elicited information on psychological care, physical care, social care, maternal and foetal care during labour. According to Ernestine Weidenbach's model the nursing service includes observation, ministrations and validation. The researcher holds a view that pre-eclamptic teenagers should be attended to as human beings needing psychological, physical and social care. It is important to also review the care the teenager got in the labour unit as well as the care and observations done to ensure foetal survival.

7.2 PSYCHOLOGICAL CARE

TABLE 7.1: QUALITY OF PSYCHOLOGICAL CARE OF TEENAGERS WITH PRE-ECLAMPSIA DURING LABOUR (N=8)

		YES	NO	SOMETIMES	NOT APPLICABLE
1.	Pre-eclamptic teenagers treated as individuals	2 (25%)	2 (25%)	4 (50%)	-
2.	Individual needs considered	1 (12.5%)	1 (12.5%)	6(75%)	
3.	Teenagers cared for together with older mothers	8 (100%)	-	-	-
4.	Nurses explained each procedure	2(25%)	2(25%)	4(50%)	-
5.	Self-esteem of teenagers respected	2(25%)	1(12.5%)	5(62.5%)	-
6.	Listening to teenagers problems during labour	1 (12.5%)	1(12.5%)	6(75%)	-
7.	Nurses treated teenagers with sympathy and understanding	2(25%)	6(75%)	-	-
8.	Patients worries and anxieties relieved	3(37.5%)	-	5(62.5%)	-
9.	Nurse - teenage relationship - motherly	3 (37.5%)	5(32.5%)	-	-
10.	Nurse - teenage relationship - harsh	5(62.5%)	-	-	-

FIGURE 7.1: QUALITY OF PSYCHOLOGICAL CARE GIVEN TO TEENAGERS WITH PRE-ECLAMPSIA DURING LABOUR



Activities

1. Pre-eclamptic teenagers were treated as individuals.
2. Individual needs were considered.
3. Teenagers were cared for together with older mothers.
4. Nurses explained each procedure.
5. Self-esteem of teenagers was respected.
6. Listening to teenagers' problem during labour.
7. Nurses treated teenagers with sympathy and understanding.
8. Patients anxieties and worries were relieved.
9. Nurse-patient relationship was motherly.

Table 7.1 and figure 7.1 contain activities carried out by nurses in relation to the psychological care of a pre-eclamptic teenager during labour.

7.2.1 Activity 1: Pre-eclamptic teenagers were treated as individuals

As shown in figure 7.1, 25% (2) of the patients received good psychological care, 25% (2) did not get it and 50% (4) of the patients were sometimes relieved psychologically and during some other time this aspect was neglected.

7.2.2 Activity 2: Considering of individual needs

Figure 7.1 shows that consideration of individual needs was given to only one client. This one client was definite that her needs were addressed and the rest were not definite. Some of their needs were addressed while others were not.

7.2.3 Activity 3: Teenagers were cared for together with older mothers

Teenagers were cared for in the same unit together with older mothers. There was no exception to this, 100% (8) of the subjects were mixed with older mothers. One of the teenagers happened to be in the same labour room together with her own mother.

7.2.4 Activity 4: Nurses explained each procedure

In 25% (2) of the patients all procedures were explained before they were done while in the other 25% (2) attendants just instructed the patients without explaining what was to be done. In 50% (4) of the clients some procedures were explained.

7.2.5 Activity 5: Self-esteem of teenagers were respected

In 25% (2) of the patients self-esteem was respected in a satisfactory way and in 12.5% (1) this was not considered at all, and in 62.5% (5) this was respected in some instances and neglected in other instances.

7.2.6 Activity 6: Listening to teenagers' problems during labour

As shown in figure 7.1 there was only one positive response and in 75% (6) of the clients thought that nurses listened and considered some aspects and other problems were not listened to.

7.2.7 Activity 7: Teenagers were treated with sympathy and understanding

Figure 7.1 shows that 25% (2) of the patients were cared for with sympathy and understanding in everything and 75% (6) thought that they were sometimes treated with understanding but in most instances this was missed during labour.

7.2.8 Activity 8: Patient worries and anxieties were relieved

Allaying of anxiety during labour was done well in 37.5% (3) of the patients but in 62.5% (5) this was not done. Reeder, Martin and Koniak (1992) stress that every effort should be exerted to relieve the client's anxiety which may sometimes be brought about by apprehension regarding her illness. The client's psyche may influence the duration and character of labour considerably. The woman who is fearful, anxious, or extremely excited may become tense and have difficulty working with her contractions. These women often have longer and more uncomfortable labours. The release of catecholamines in response to stress is thought to interfere with the activity of the myometrium and the woman's increased tension leads to fatigue. Supportive nursing care during labour can also aid the woman to relax (Reeder et al 1992,942).

7.2.9 Activity 9: Nurse-patient relationship was motherly

The majority 62.5% (5) did not have a motherly relationship, only 37.5% (3) received motherly treatment from the nurses.

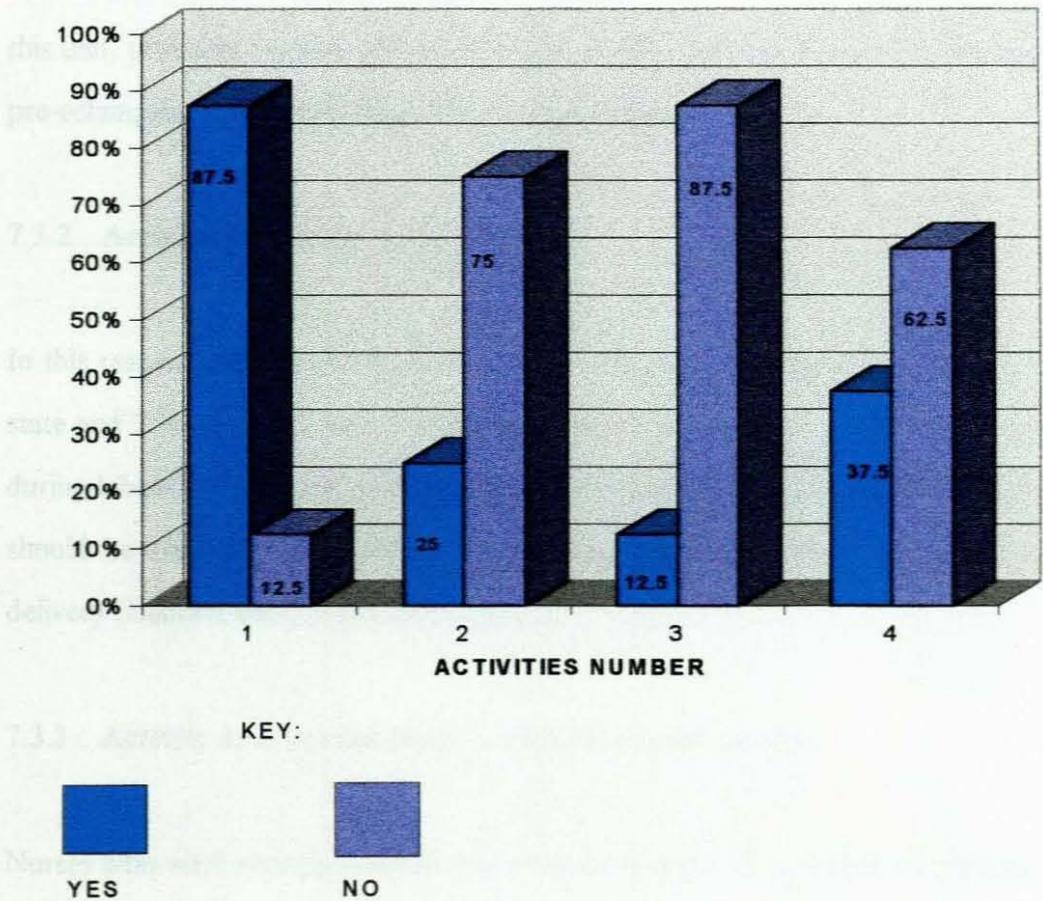
7.2.10 Summary

As illustrated in figure 7.1, responses show that the aspect of giving psychological care to clients, especially those who needed it most such as a teenager with pre-eclampsia, is still lacking. Areas of psychological care which need special attention are listening to problems, empathy and understanding, motherlyness as well as allaying of anxiety.



7.3 PHYSICAL CARE

FIGURE 7.2: QUALITY OF PHYSICAL CARE DURING LABOUR (N=8)



Activities

1. Admission into a high risk unit in the labour ward.
2. Patient is kept clean.
3. Special nurse is allocated to the patient.
4. Pain relief measures ensured during labour.

Figure 7.2 contains activities which were carried out to show the quality of physical care during labour.

7.3.1 Activity 1: Admission into a high risk unit in the labour room

Figure 7.2 shows that the majority 87.5% (7) of the clients were admitted into a high risk unit in the labour room, for specialised care, only one client was not admitted into this unit, probably because of lack of space, as this unit was not only for teenagers with pre-eclampsia, but for other pre-eclamptic patients too.

7.3.2 Activity 2: Patients were kept clean

In this respect analysis shows that only 25% (2) of the patients were kept in a hygienic state and 75% (6) were not. The mother should be made as comfortable as is possible during labour by attending to oral and body hygiene at regular intervals. The bed linen should be changed frequently as amniotic fluid usually drains throughout labour and delivery (Bennett and Brown 1990:298).

7.3.3 Activity 3: A special nurse is allocated to the patient

Nurses who were allocated to this unit were responsible for a number of patients. It was only in one case where the ratio was 1:1 during labour. 87.5% (7) of patients seen and observed did not have a special nurse probably due to a remarkable shortage of personnel.

7.3.4 Activity 4: Pain relief measures were ensured during labour

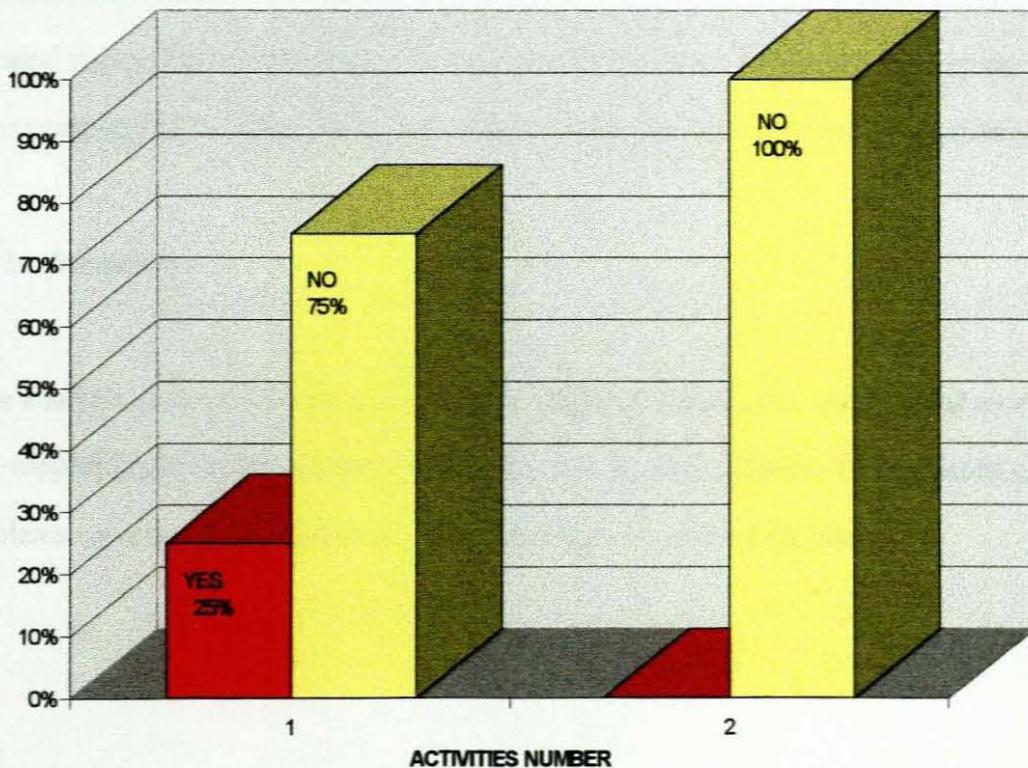
Pain relief was ensured in 37.5% (3) of the patients and for 62.5% (5) of patients this was not the case.

7.3.5 Summary

It is important that the pre-eclamptic teenagers who are in labour be admitted into a section where this condition receives specialised nursing care. In this section even though the patients were admitted to a special unit, the nurses were not enough to conduct special nursing care and the hygiene standard was not upheld.

7.4 SOCIAL CARE

FIGURE 7.3: QUALITY OF SOCIAL CARE (N=8)



Activities

1. Relatives were encouraged to visit during labour.
2. Patients social problems were referred.

Figure 7.3 contains activities which were carried out in relation to social care of the client during labour.

7.4.1 Activity 1: Relatives were encouraged to visit during labour

Only 25% (2) of the clients' relatives were encouraged to visit during labour and in 75% (6) of cases this was not done.

7.4.2 Activity 2: Patients social problems were referred

In 100% (8) of the subjects there was no indication by the nurses that the patients' social problems that were discovered during the time of labour would ever be referred. This revealed that social care by personnel was not satisfactory. This is not in keeping with the current approach of providing care that is community based and interdisciplinary.

7.4.3 Summary

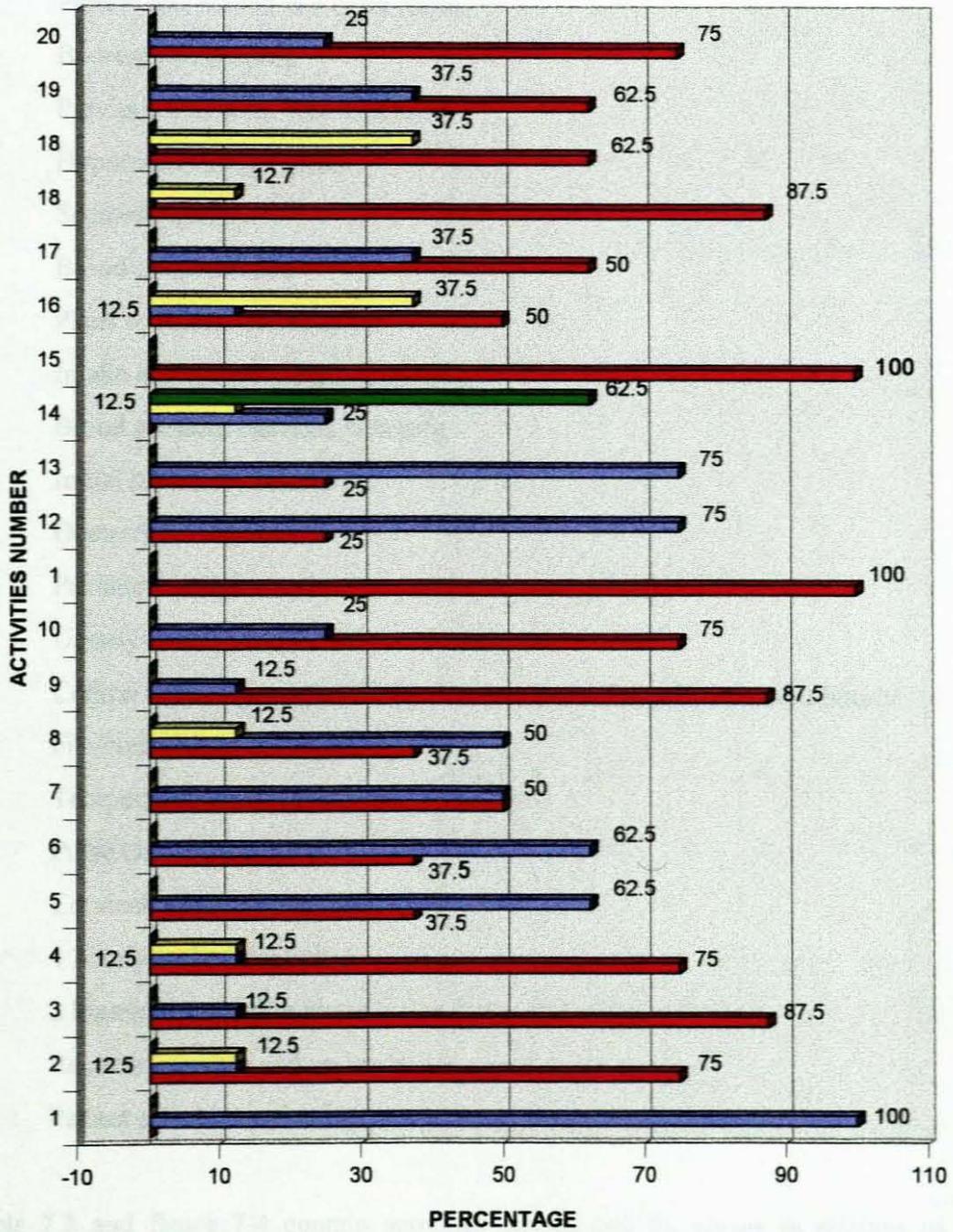
Data analysis shows that relatives of clients were not informed or encouraged to come and support their family members during labour. It also appeared that patients social problems were somehow overlooked and therefore not referred for attention.

7.5 MATERNAL CARE

TABLE 7.2: QUALITY OF MATERNAL CARE DURING LABOUR (N=8)

		YES	NO	SOMETIMES	NOT APPLICABLE
1.	Patient nursed in a quiet room	-	8(100%)	-	--
2.	Bedrest ensured	6(75%)	1(12.5%)	1(12.5%)	-
3.	Previous treatment continued	7(87.5%)	-	1(12.5%)	--
4.	Hypotensive drugs given	6(75%)	1(12.5%)	1(12.5%)	--
5.	Sedatives given	3(37.5%)	5(62.5%)	-	--
6.	Blood crossmatched	3(37.5%)	5(62.5%)	-	--
7.	Plans to hasten labour made	4(50%)	4(50%)	-	--
8.	Intake and output measured hourly	3(37.5%)	4(50%)	1(12.5%)	--
9.	Blood pressure checked ¼ hourly	7(87.5%)	-	1(12.5%)	-
10.	Initial laboratory tests done	6(75%)	2(25%)	-	-
11.	Obstetrician informed	8(100%)	-	-	-
12.	Paediatrician informed	2(25%)	6(75%)	-	-
13.	Urinanalysis for protein and ketones - 4 hourly	2(25%)	6(75%)	-	-
14.	Central venous pressure (CVP) in severe pre-eclampsia measured hourly	-	2(25%)	6(75%)	-
15.	Fits/convulsions controlled	8(100%)	-	-	-
16.	Temperature checked 4 hourly	4(50%)	1(12.5%)	3(37.5%)	-
17.	Pulse checked 4 hourly	4(50%)	1(12.5%)	3(37.5%)	-
18.	Cervical dilatation checked 4 hourly (in latent phase)	7(87.5%)	1(12.5%)	-	-
	2 hourly (in active phase)	5(62.5%)	-	3(37.5%)	-
19.	Records accurate and up-to-date	5(62.5%)	3(37.5%)	-	-
20.	Patient asked how she felt	6(75%)	2(25%)	-	-

FIGURE 7.4: QUALITY OF MATERNAL CARE DURING LABOUR (N=8)



KEY

- YES
- NO
- SOMETIMES
- NOT APPLICABLE

Activities

1. Patient was nursed in a quiet room.
2. Bedrest was ensured.
3. Previous treatment was continued.
4. Hypotensive drugs given.
5. Sedatives given.
6. Blood crossmatched.
7. Plans to hasten labour made.
8. Intake and output measured hourly.
9. Blood pressure checked $\frac{1}{4}$ hourly.
10. Initial laboratory tests done.
11. Obstetrician informed.
12. Paediatrician informed.
13. Urinalysis for protein and ketones 4 hourly.
14. Central venous pressure (CVP) in severe pre-eclampsia measured hourly.
15. Fits/convulsions controlled.
16. Temperature checked 4 hourly.
17. Pulse checked 4 hourly.
18. Cervical dilatation checked
4 hourly in the latent phase
2 hourly in the active phase
19. Records accurate and up to-date.
20. Patient asked how she felt.

Table 7.2 and figure 7.4 contain activities carried out by nurses in relation to the maternal care of a teenager with pre-eclampsia during labour.

7.5.1 Activity 1: Patient nursed in a quiet darkened room

Data analysis shows that 100% (8) of the clients were not nursed in a darkened and a quiet room probably due to lack of facilities which allow such to be done. Reeder *et al*

(1992) stress that the client should be in a single room, free from noise and strong lights because loud noises and bright lights may be enough to precipitate a convulsion.

7.5.2 Activity 2: Bedrest was ensured

In 75% (6) of the clients bedrest was ensured and in 12.5% (1) this was lacking and in 12.5% (1) this was sometimes remembered and in other instances forgotten. Regardless of the severity of pre-eclampsia bedrest is essential because rest and relaxation are major considerations in the care of pre-eclampsia (Reeder *et al* 1992:809).

7.5.3 Activity 3: Previous treatment continued

Previous treatment in most clients was Hydralazine tablets 25 mg 8 hourly, Diazepam 5 mg daily, Neprosol 6,25 mg only if diastolic blood pressure is above 110 mm Hg. Previous treatment was continued in 87.5% (7) of the patients and it was only 12.5% (1) of them where it was not continued.

7.5.4 Activity 4: Hypotensive drugs given

These were given to 75% (6) of the patients and not given to 12.5% (1) of them and in 12.5% (1) of the patients this was sometimes given and sometimes not.

7.5.5 Activity 5: Sedatives given

A percentage of 37.5% (3) clients were given sedatives to ensure rest during labour and 62.5% (5) were not given sedation.

7.5.6 Activity 6: Blood crossmatched

A specimen for crossmatching was taken in 37.5% (3) of the clients and not taken in 62.5% (5) of the clients.

7.5.7 Activity 7: Plans to hasten the second stage of labour

Arrangements were made to hasten the second stage of labour in 50% (4) of the clients and not in the remaining 50% (4).

7.5.8 Activity 8: Intake and output measured hourly

Data analysis shows that 37.5% (3) of the clients had their intake and output measured, whereas in 50% (4) of them it was not measured and in 12.5% (1) it was occasionally measured.

7.5.9 Activity 9: Blood pressure measured ¼ hourly

This nursing activity was done in 87.5% (7) of the patients and in 12.5% (1) it was sometimes done and in other times missed.

7.5.10 Activity 10: Initial laboratory tests done

Initial blood tests are; full blood count, blood urea nitrogen, creatinine and uric acid levels, arterial blood gases, serum oestriol and electrolytes (Reeder et al 1992:807). In 75% (6) of the patients initial laboratory tests were done and in 25% (2) of them it was not done. These tests are helpful because they may reveal the effects of pre-eclampsia on the kidneys, liver and fetoplacental unit and in some cases the presence of haematologic abnormalities may be evidenced through laboratory changes (Reeder et al 1992:807).

7.5.11 Activity 11: Obstetrician informed

The obstetrician was informed in 100% (8) of the patients.

7.5.12 Activity 12: Paediatrician informed

Only 25% (2) of the clients delivered when the paediatrician had been informed to come and provide his expertise in case resuscitation of the baby was necessary and in 75% (6) cases the paediatrician was not informed.

7.5.13 Activity 13: Urinalysis for protein and ketones were checked 4 hourly

Data analysis shows that this test was done accordingly in 25% (2) of the patients and not in 75% (6) of them. All specimens of urine should be tested for protein, ketones and glucose and the results recorded as these will give guidance on the severity of the condition (Bennett and Brown 1990:298).

7.5.14 Activity 14: Central venous pressure in severe pre-eclampsia was measured hourly

In most of the patients, that is, 62.5% (5) this was not applicable as the obstetricians said it was not necessary but in 25% (2) of them it was not measured hourly and in 12.5% (1) it was occasionally measured.

7.5.15 Activity 15: Fits/convulsions were controlled

Convulsions were controlled in 100% (8) of the clients in such that they did not experience them at all.

7.5.16 Activity 16: Temperature was checked 4 hourly

The temperature was checked 4 hourly in 50% (4) of the patients and not checked in 12.5% (1) and it was checked occasionally in 37.5% (3) of the clients.

7.5.17 Activity 17: Pulse was checked 4 hourly

Pulse, like the temperature was checked accordingly in 50% (4) of the patients, was not checked in 12.5% (1), and was occasionally checked in 37.5% (3) of the patients.

7.5.18 Activity 18: Cervical dilatation was checked 4 hourly in latent phase and 2 hourly in the active phase

Vaginal examination was done to check the cervical dilatation 4 hourly during the latent phase in 87.5% (7) of the clients and 12.5% (1) were not checked. During the active phase 62.5% (5) were strictly checked 2 hourly and 37.5% (3) were not.

7.5.19 Activity 19: Records were accurate and up to-date

In 62.5% (5) of the clients, recording during labour was accurate and up to date and in 37.5% (3) records were not satisfactory.

7.5.20 Activity 20: The patient was asked how she felt

During labour the care and concern was shown by finding out from the teenage pre-eclamptic client how she was feeling. This concern was shown to 75% (6) of them and in 25% (2) of the clients this was overlooked and missed.

7.5.21 Summary

The data analysis as shown in figure 7.4 reflects the quality of maternal care to be good because most activities received more than 50% of the nurses attention. It also shows that there were aspects of the nursing process which were not satisfactory, such as

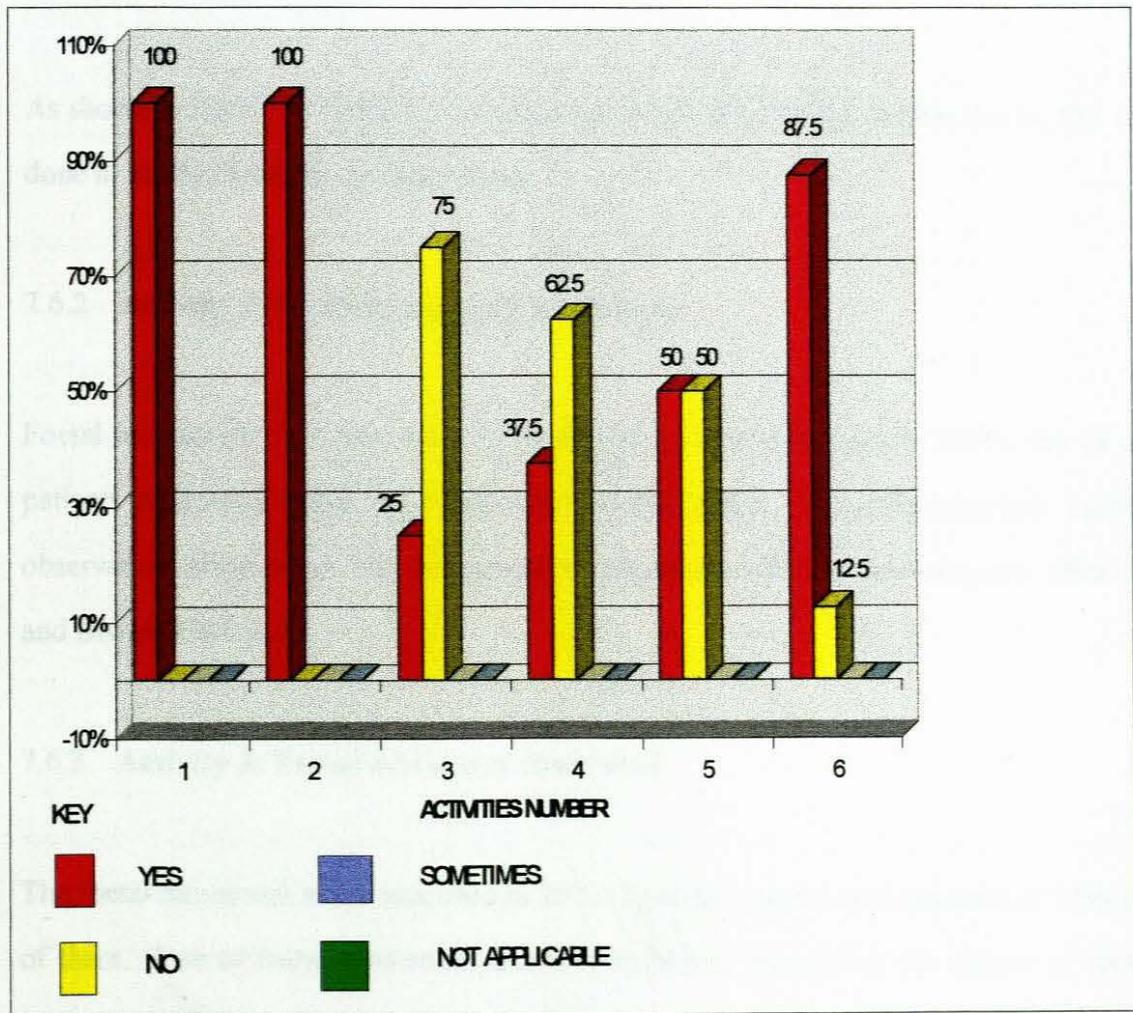
intake and output measuring and some other aspects that were almost totally missed. Some aspects of care which were lacking were observed by the researcher to be due to the shortage of personnel and the inavailability of paediatricians to take care of the baby immediately after birth to ensure respiration is well established.

7.6 FOETAL CARE

TABLE 7.3: QUALITY OF FOETAL CARE DURING LABOUR (N=8)

		YES	NO	SOMETIMES	NOT APPLICABLE
1.	Foetal monitoring ¼ hourly	8(100%)	-	-	-
2.	Cardiotocography continuous	8(100%)	-	-	-
3.	Foetal movement chart used	2(25%)	6(75%)	-	-
4.	Serial ultrasound scans done	-	5(62.5%)	-	-
5.	Lecithin/sphingomyelin (L/S) ratio test done	-	4(50%)	-	-
6.	Baby delivered alive	-	1(12.5%)	-	-

FIGURE 7.5: QUALITY OF FOETAL CARE DURING LABOUR



Activities

1. Foetal monitoring ¼ hourly.
2. Cardiotocograph continuous.
3. Foetal movement chart used.
4. Serial ultrasound scan done.
5. Lecithin/sphingomyelin (L/S) ratio test done.
6. Baby delivered alive.

Table 7.3 and figure 7.5 contain activities carried out by nurses in relation to foetal care during labour in teenagers with pre-eclampsia.

7.6.1 Activity 1: Foetal monitoring ¼ hourly

As shown in figure 7.5 foetal monitoring was strictly done by the nurses, that is, this was done in 100% (8) of the teenage clients.

7.6.2 Activity 2: Cardiotocography continuous

Foetal monitoring was also done by means of a cardiotocograph in 100% (8) of the patients to double check the foetal heart during labour. A cardiotocograph permits observation of the heart rate throughout a contraction which is advantageous (Bennett and Brown 1990:298).

7.6.3 Activity 3: Foetal movement chart used

The foetal movement chart was used in 25% (2) of the patients and not used in 75% (6) of them. Use of foetal movement charts is helpful in monitoring the degree of foetal movements (Bennett and Brown 1990:298).

7.6.4 Activity 4: Serial ultrasound scans done

Ultrasound scans were done in 37.5% (3) of the clients and were not done in 62.5% (5) of them. Bennett and Brown (1990) recommends ultrasound scans as these help in assessing the foetal growth.

7.6.5 Activity 5: Lecithin/sphingomyelin (L/S) ratio test done

As shown in figure 7.5, this test which helps in assessing the foetal lung maturity, was done in 50% (4) of the clients and it was not done in the another 50% (4) of the clients.

7.6.6 Activity 6: Baby was delivered alive

The babies of 87.5% (7) of the clients were delivered alive and in 12.5% (1) the outcome was maternal and foetal death.

7.6.7 Summary

Analysis of foetal care shows that the best was done for the clients though some aspects were overlooked. Analysis also shows how dangerous pre-eclampsia is, it sometimes ends up with the tragedy of death of the baby and sometimes death of both the mother and the baby. As the researcher was a participant observer she was present during the death of one of the subjects of this research.

7.7 CONCLUSION

Chapter 7 deals with analysis, presentation, interpretation and discussion of findings. Analysis of data revealed that the nursing care was satisfactory, but there are aspects which were sometimes not done, such as attending properly to psychological, social and physical care of the teenage patients. There are other factors which contribute to this which the researcher as a participant observer noted need investigation and then improvement. These were factors such as shortage of nurses and doctors, lack of necessary equipment, and lack of facilities.

CHAPTER 8

SUMMARY ON FINDINGS, CONCLUSIONS, LIMITATIONS AND RECOMMENDATIONS

8.1 INTRODUCTION

In this chapter a brief overview of the project will be presented. Emphasis will be given to significant findings, conclusions, limitations and recommendations.

8.2 SUMMARY

The study aimed at investigating the factors that contribute to the development of pre-eclampsia in teenagers and in assessing the quality of care given to them during labour. The main concern being that teenagers are at risk and the problem of pre-eclampsia is escalating in them. Pre-eclampsia does not cause any pain or discomfort in its early manifestation and as such affected teenagers do not seek medical help until the disease is so well established that management becomes difficult. Pre-eclampsia is dangerous and it may cause the death of both the mother and the unborn baby.

Literature reviewed showed that pre-eclampsia is a serious problem in other countries as well. The contributory factors being heredity, age, nulliparity, low socio-economic status, diet, excessive heat and humidity, warm and cold winds, mild weather and sudden changes in weather, chronic hypertensive disorders and placental abnormalities.

Clinical presentation of pre-eclampsia includes a rise in blood pressure, proteinuria, weight gain, visual disturbances, oedema and epigastric pain. Management of pre-eclampsia includes dietary and pharmacological manipulation, rest and admission into a hospital for further management by the 37th week of gestation. During labour, management includes close observation, continuation of medications, stabilising of blood

pressure and prevention of convulsions. Treatment should continue at least 48 hours post delivery.

8.3 METHODOLOGY

8.3.1 Research design

A descriptive exploratory design was used in order to examine the frequency with which teenagers are associated with pre-eclampsia and describes the contributory factors, and assess the quality of midwifery care of these teenagers during labour at Ngwelezane Hospital in KwaZulu-Natal.

8.3.2 Research instrument and sampling

The desired information was obtained through interviewing. A structured interview schedule was used to tap information on contributory factors to pre-eclampsia. An observation checklist was used to assess the quality of care to a pre-eclamptic teenager during labour. A sample of forty (40) teenagers with pre-eclampsia, obtained through accidental sampling were interviewed. The interview schedule was structured into personal, social and economic factors, diagnosis of pregnancy, signs and symptoms of pre-eclampsia and dietary factors. Another sample of eight (8) teenagers with pre-eclampsia, obtained through accidental sampling were observed using a checklist and participative observation method of obtaining information, to assess the quality of care given to pre-eclamptic teenagers during labour.

8.3.3 Permission for conducting the study

This was obtained from the appropriate authorities of the Ngwelezane Hospital that is the Regional Superintendent of the Health Ward.

The interview was explained to the respondents and they gave informed consent. They were assured anonymity and confidentiality and the option not to participate was also explained.

8.3.4 Data analysis

Data was collected and was analysed manually by the researcher, both the information collected by means of an interview schedule and that collected by means of an observation checklist.

8.4 CONCLUSIONS

8.4.1 Assumptions of the study were:-

- pre-eclampsia is associated with some factors as well as problems encountered by teenagers during pregnancy with health care centres
- nursing intervention rendered to a pre-eclamptic teenager during antenatal care visits is not satisfactory
- psychological support by nurses to affected teenagers during labour is not sufficient.

8.4.2 Objectives were:-

- to identify factors that are associated with pre-eclampsia in teenagers
- to assess the quality of care during labour in affected teenagers
- to make recommendations on the basis of empirical findings as to relevant advice and effective management of pre-eclamptic teenagers.

While on the literature reviewed various factors have been identified by various authors, the findings in this study indicated the following:-

1. Age

There is an association between the age of the teenager and the prevalent occurrence of pre-eclampsia. The majority 37.5% (15) pre-eclamptic teenagers were 17 years old, 25% (10) were 16 years old, and 7.5% (3) were 15 years old. This factor which was found in the area where research was done, confirmed what other researchers had

identified in previous studies, that younger age is a factor associated with pre-eclampsia. Researchers such as Remich and Youngkin (1989) Moodley (1993) support the age factor as associated with pre-eclampsia. They stated that there is a relationship between the low maternal age and the development of pre-eclampsia.

2. Nulliparity

The conclusion, is that the nulliparous women are prone to pre-eclampsia. The majority of the respondents 87.5% (35) fell into this category. Chesley (1978; Beischer and Mackay (1988) also identified the factor that primigravidae are most likely to develop pre-eclampsia. The higher percentage of nulliparous teenagers supports the view by Dennis, McFarland and Hester (1985) and Moodley (1991).

3. Economic status

Remich and Youngkin (1989) state that pre-eclampsia is higher in low socio-economic groups. This view was supported in this study as pre-eclamptic teenagers 100% (40) had no source of income and could not afford expenses of the antenatal care services.

Objective 2:

In as far as heredity, diet, placental abnormalities, season and climate, chronic hypertension, uteroplacental ischaemia, disseminated intravascular coagulation and immune responses, there is no association.

Assumption 1

- pre-eclampsia is associated with some factors as well as problems encountered by teenagers during pregnancy in health care centres.

Objective 1:

- to identify factors that are associated with pre-eclampsia in teenagers.

According to the findings of this study, the assumption that pre-eclampsia is associated with some factors is supported, also the assumption that teenagers encounter financial problems which interfere with visiting of health care centres was supported. For instance, all respondents 100% (40) had no money to attend to health care centres for antenatal care services on time and regularly. The teenagers were all unmarried and this also contributed to the lack of financial support.

Assumption 2

- ◆ nursing intervention rendered to a pre-eclamptic teenager during antenatal care visits is not satisfactory

Assumption 3

- ◆ psychological support by nurses to affected teenagers during labour is not sufficient

Objective 2:

- ◆ to assess the quality care during labour in affected teenagers.

According to findings, the assumption that intervention rendered during antenatal care to pre-eclamptic teenagers is not satisfactory is supported. Teenagers did not go to the health care centres in time as a result of lack of financial support 100% (40). The fact that teenagers were hiding the pregnancy and would not wish to be seen by any person pregnant also contributed to this assumption.

The assumption that psychological support during pregnancy is insufficient is supported. In 75% (6) pre-eclamptic teenagers, the psychological care aspect was not satisfactory.

Further conclusions based on the study are as follows:-

The reaction of parents/guardians seemed to be too harsh on a pregnant teenager. It was found that in 52.5% (2) cases the parents were very angry. One was scolded and shouted at and the other was severely beaten.

The common emotional reaction as expressed by 82.5% (33) of the respondents to pregnancy was that they were upset, angry and blamed themselves for becoming pregnant.

Subsection 1: Psychological care

Activities relating to psychological care were not done consistently by different care givers. Some activities were sometimes done, some were not done at all and others done well. For instance some teenagers were not treated as individuals during labour (25%) (2). The majority 62.5% (5) of teenagers were not taken care of psychologically. Findings indicate that this activity was not taken as important.

Subsection 2: Physical care

In this aspect of nursing care, care givers tried their best to give good care. The problem that was identified was that the physical structure and layout of the institution did not provide for specialisation of all pre-eclamptic mothers. Shortage of personnel was another attribute that contributed to the lack of some activities like keeping the patient clean all the time and allocation of a special nurse for a pre-eclamptic teenager.

Subsection 3: Social care

The relatives of patients were probably not informed or encouraged to come and support the teenage mother during labour. Social problems that were identified during labour were not appropriately referred in 100% (8) of the subjects.

Subsection 4: Maternal care

Generally, the quality of maternal care was, good, though there were aspects of the nursing process that were lacking and others totally missed, such as nursing of a pre-eclamptic patient in a quiet darkened room. Reeder *et al* (1992) emphasises that the pre-eclamptic patient should be in a quiet, single room, free from noise and strong lights, as lack of this can precipitate convulsions. Again in this aspect, some activities were lacking because of manpower shortage and lack of facilities.

Subsection 5: Foetal care

In this aspect midwives concentrated more on foetal monitoring and this was done 100% (8). Foetal movement charts were rarely used. The lecithin/sphingomyelin (L/S) test was done in 50% (4) cases. A sum of 87.5% (7) client's babies were born alive.

8.5 LIMITATIONS OF THE STUDY

- Due to time and financial constraints, as well as the convenient/accidental sampling method the researcher could not do a larger study. Though pre-eclampsia in teenagers is an increasing concern, it was not easy to identify all cases that could have been admitted in other hospitals in KwaZulu-Natal.

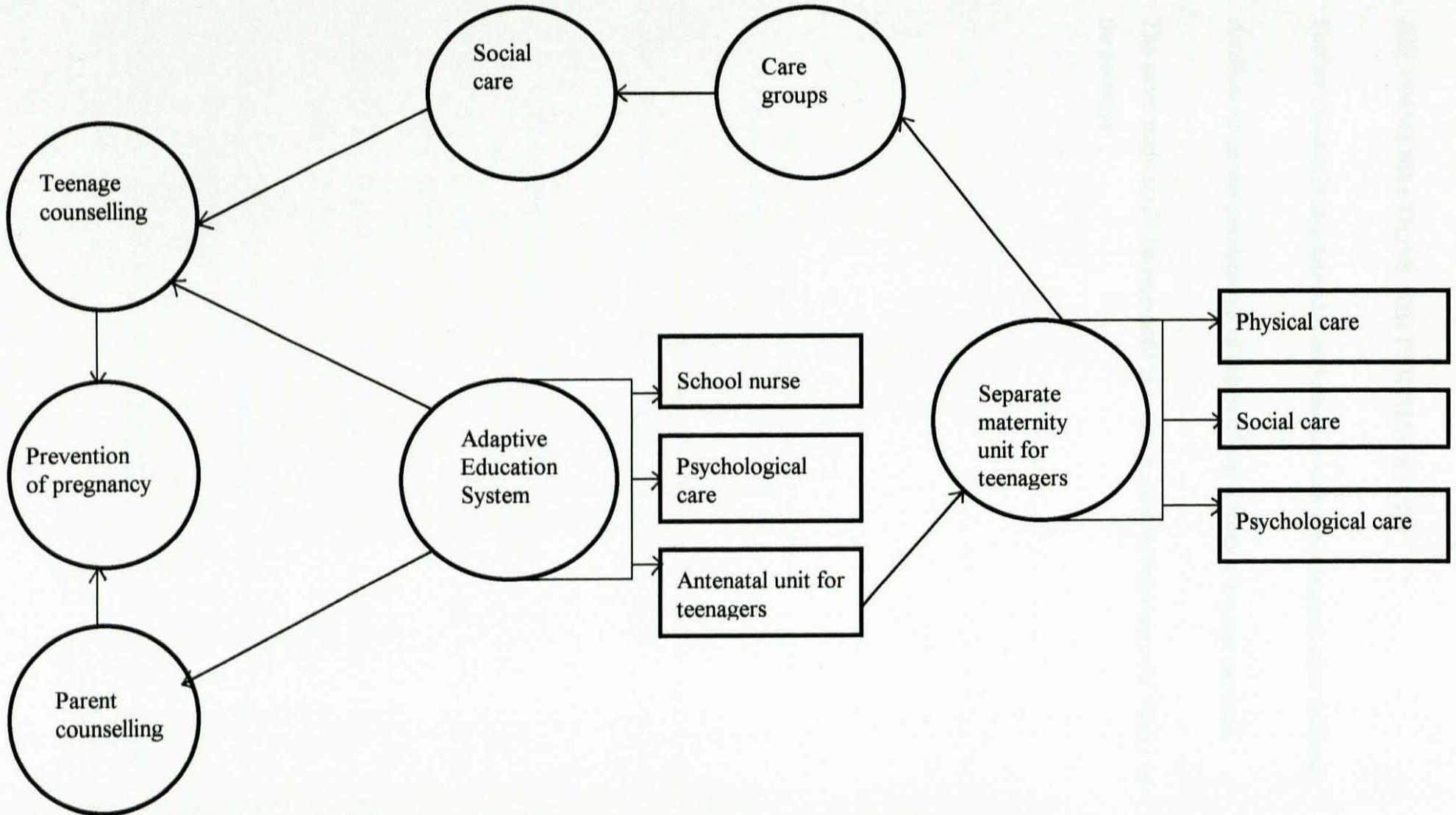
8.6 RECOMMENDATIONS

In relation to findings and conclusions of this study, the researcher makes the following recommendations:-

8.6.1 In health education programmes that are provided by school health nurses, antenatal care lessons should be included for teenagers.

- 8.6.2 There is an urgent need to establish the youth counselling health care services as an extension of family planning services, where all teenagers could be free to express their frustrations and anxieties.
- 8.6.3 Where antenatal health care services are provided there should be a separate section for teenagers only. This is hoped to save teenagers from embarrassment and reluctance from going for antenatal care services.
- 8.6.4 Youth seminars could be organised by health institutions on pregnancy related disease such as pre-eclampsia and others.
- 8.6.5 There should be more intense education of the community in relation to antenatal care problems of teenagers.
- 8.6.6 A separate labour unit is recommended for teenage mothers only.
- 8.6.7 Psychosocial care as well as physical care must be taken as very important in the care of teenage pre-eclamptic mothers. Health authorities to provide for enough staff in maternity wards while there should be on going staff development on this aspect of nursing.
- 8.6.8 Extensive health education on pregnancy induced hypertension should be given to pre-eclamptic teenagers prior to their discharge from hospital to prevent recurrence.
- 8.6.9 To increase the health authorities' awareness of the condition, the study could be repeated in other hospitals in KwaZulu-Natal Province.

FIGURE 8.1: RECOMMENDATIONS TO IMPROVE TEENAGE CARE TO MINIMISE INCIDENCE OF PRE-ECLAMPSIA



8.7 RECOMMENDATIONS FOR FURTHER STUDY

1. Further research is recommended on teenagers with pre-eclampsia after delivery.
2. A follow up on the development of babies of pre-eclamptic teenage mothers.
3. The same study could be replicated in a larger scale to determine the extent of the problem.

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Final

Directions

1. Make a copy of this document
2. Agree the practice with your

PART I

1. PERSONAL FACTORS

- 1.1. Registrar Number
- 1.2. Age
- 1.3. Ethical Approval
- 1.4. Researcher Name
- 1.5. Party

2. SOCIAL FACTORS

- 2.1. SMOKING
 - 2.1.1. Were you attending school when you were last pregnant?

ANNEXURE A

FACTORS ASSOCIATED WITH PRE-ECLAMPSIA AND QUALITY MIDWIFERY CARE DURING LABOUR IN AFFECTED TEENAGERS AT NGWELEZANA HEALTH WARD

Dear Client

Please answer the following questions. Your answers will help to provide information on factors associated with pre-eclampsia. All information collected is confidential and will be helpful in the nursing care of eclamptic patients. Your name is not needed on the form.

Directions:

1. Make a cross (x) in the appropriate box e.g.
2. Answer the question where necessary.

Y	N
1	2

PART 1

1. PERSONAL FACTORS

- 1.1 Registration Number:
- 1.2 Age:
- 1.3 Blood Pressure:
- 1.4 Residential Area:
- 1.5 Parity: Gravida:

2. SOCIAL FACTORS

2.1 SCHOOLING

- 2.1.1 Were you attending school when you became pregnant?

Y	N
1	2

2.1.2 If yes to No. 2.1 indicate class level:

1.	Illiterate	
2.	Class 1 - Std 2	
3.	Standard 3 - 5	
4.	Standard 6 - 8	
5.	Standard 9 - 10	
6.	Other specify	

2.2 FAMILY HISTORY

2.2.1 With whom do you stay at home?

1.	Mother only	
2.	Father only	
3.	Both parents	
4.	Grandparents	
5.	Other, specify	

2.2.2 How many siblings are in your family?

1.	1 - 2	
2.	3 - or more	

2.2.3 What was the reaction of your parents/guardian towards this pregnancy?

.....
.....
.....

2.2.4 What was the attitude of your partner towards this pregnancy?

.....
.....
.....

2.2.5 Did any of your family members suffer from pre-eclampsia?

Y	N
1	2

2.3 ECONOMIC FACTORS

2.3.1 Is your parent(s)/guardian working?

Y	N
1	2

2.3.2 Are you working?

Y	N
1	2

2.3.3 Is your partner working?

Y	N
1	2

PART 11

1.1 DIAGNOSIS OF PREGNANCY

1.1.1 At how many weeks/months did you discover that you were pregnant?

1.	1-12 Weeks	
2.	13-24 Weeks	
3.	25-32 Weeks	
4.	33-40 Weeks	

1.1.2 Did you visit a doctor/clinic to confirm pregnancy?

Y	N
1	2

1.1.3 If no, to number 1.1.2 state reasons why you did not seek a medical opinion?

.....
.....
.....

1.1.4 What was your emotional reaction towards this pregnancy?

.....
.....
.....

1.1.5 When did you start attending antenatal clinic?

1.	1-12 Weeks	
2.	13-24 Weeks	
3.	25-32 Weeks	
4.	33-40 Weeks	

1.2 SIGNS AND SYMPTOMS

1.2.1 Did you notice a sudden increase in weight?

Y	N
1	2

1.2.2 Did you suffer headaches before admission?

Y	N
1	2

1.2.3 Did you experience any epigastric pain?

Y	N
1	2

1.2.4 Did you have any blurring of vision?

Y	N
1	2

1.2.5 Did you have oedema on your legs and feet?

Y	N
1	2

1.3 DIETARY FACTORS

1.3.1 Indicate which foods do you like most during this pregnancy, or which foods did you eat most during this pregnancy?

1.	Red Meat	
2.	Chicken	
3.	Fish	
4.	Eggs	
5.	Beans	
6.	Cabbage	
7.	Spinach	
8.	Carrots	
9.	Beetroot	
10.	Porridge (Dry or Wet)	
11.	Samp	
12.	Rice	
13.	Potatoes	
14.	Fruit	

ANNEXURE B

AN INSTRUMENT FOR EVALUATING THE QUALITY MIDWIFERY CARE OF A PRE-ECLAMPTIC TEENAGE PATIENT DURING LABOUR

OBSERVATION CHECK LIST

KEY TO RESPONSES

- 1. Y = Yes
- 2. N = No
- 3. S = Sometimes
- 4. N/A = Not Applicable

INSTRUCTIONS

- 1. Use (x) to indicate the appropriate response

1. PSYCHOLOGICAL CARE

- 1.1 Are pre-eclamptic teenagers treated as individuals?
- 1.2 Are their individual needs considered?
- 1.3 Are they cared for together with other older mothers?
- 1.4 Do nurses explain each and every procedure to the teenage mothers?
- 1.5 Do they respect the teenager's self-esteem?
- 1.6 Do the nurses talk and listen to the teenager's problems during labour?
- 1.7 Do the nurses treat the teenager with sympathy and understanding?

	Y	N	S	N/A
1.1				
1.2				
1.3				
1.4				
1.5				
1.6				
1.7				

		Y	N	S	N/A
1.8	Are the patients worries and anxieties relieved?				

1.9	Is the nurse-teenager relationship:- -motherly -harsh				
-----	---	--	--	--	--

2.	PHYSICAL CARE	Y	N	S	N/A
2.1	Is the patient admitted into a high-risk unit in the labour ward?				

2.2	Is the patient kept clean right through labour? (Bed linen and patients gown clean and dry).				
-----	--	--	--	--	--

2.3	Is there a special nurse allocated to the patient?				
-----	--	--	--	--	--

2.4	Are pain relief measures ensured during labour?				
-----	---	--	--	--	--

3.	SOCIAL CARE	Y	N	S	N/A
3.1	Are relatives, encouraged to visit the patient during labour?				

3.2	Are the patients' social problems referred to the social work department?				
-----	---	--	--	--	--

4.	MATERNAL CARE	Y	N	S	N/A
4.1	Is the patient nursed in a quiet darkened room?				

4.2	Is bedrest ensured?				
-----	---------------------	--	--	--	--

4.3	Is previous treatment continued?				
-----	----------------------------------	--	--	--	--

4.4	Are hypotensive agents given?				
-----	-------------------------------	--	--	--	--

- 4.5 Are sedatives e.g. vallium or phenobarb given?

--	--	--	--
- 4.6 Is blood cross-matched?

--	--	--	--
- 4.7 Are plans to hasten the second stage made?

--	--	--	--
- 4.8 Is the intake and output measured hourly?

--	--	--	--
- 4.9 Is the blood pressure checked quarter hourly?

--	--	--	--
- 4.10 Have the initial laboratory tests been done?

--	--	--	--
- 4.11 Has the obstetrician been informed?

--	--	--	--
- 4.12 Has the paediatrician been informed?

--	--	--	--
- 4.13 Is urinalysis done four-hourly for:
- protein
- ketones

--	--	--	--
- 4.14 In severe pre-eclampsia, is central venous pressure (CVP) measured hourly?

--	--	--	--
- 4.15 Are fits/convulsions controlled?

--	--	--	--
- 4.16 Is the temperature checked four-hourly?

--	--	--	--
- 4.17 Is the pulse checked quarter-hourly?

--	--	--	--
- 4.18 Is cervical dilatation checked:-
- four hourly
- two hourly

--	--	--	--
- 4.20 Do nurses inquire from the patient how she feels?

--	--	--	--

5. **FOETAL CARE**

5.1 Is foetal monitoring done quarter-hourly?

Y	N	S	N/A

5.2 Is cardiotocography continuous?

--	--	--	--

5.3 Is the foetal movement chart used?

--	--	--	--

5.4 Were serial ultrasound scans done?

--	--	--	--

5.5 Was Lecithin/Sphingomyelin (L/S) ratio test done?

--	--	--	--

5.6 Was the baby delivered alive?

--	--	--	--

PROVINCE OF
KWAZULU/NATAL

ISIFUNDAZWE
SAKWAZULU/NATAL

PROVINSIE
KWAZULU/NATAL

HEALTH

EZEMPILO

GESONDHEIDSDIENSTE

ANNEXURE C

THE SENIOR MEDICAL SUPERINTENDENT - NGWELEZANA HOSPITAL

POSTAL ADDRESS:	FAX NO.:	TEL NO.:
IKHELI LEPOSI : P/BAG X 20021	FAX : 0351/941684	UCINGO: 0351/942311
POS ADRES : EMPANGENI	FAKS NO:	TEL NO.: EXT. 241

ENQUIRIES :	DATE :	REFERENCE:
IMIBUZO : DR P. HASELAU	USUKU: 92.12.07	INKOMBA :
NAVRAE :	DATUM:	VERWYSING:

Prof. P.N. Nzimande
Dept. Of Nursing Science
University Of Zululand
Private Bag X 1001
KWA-DLANGEZWA
3886

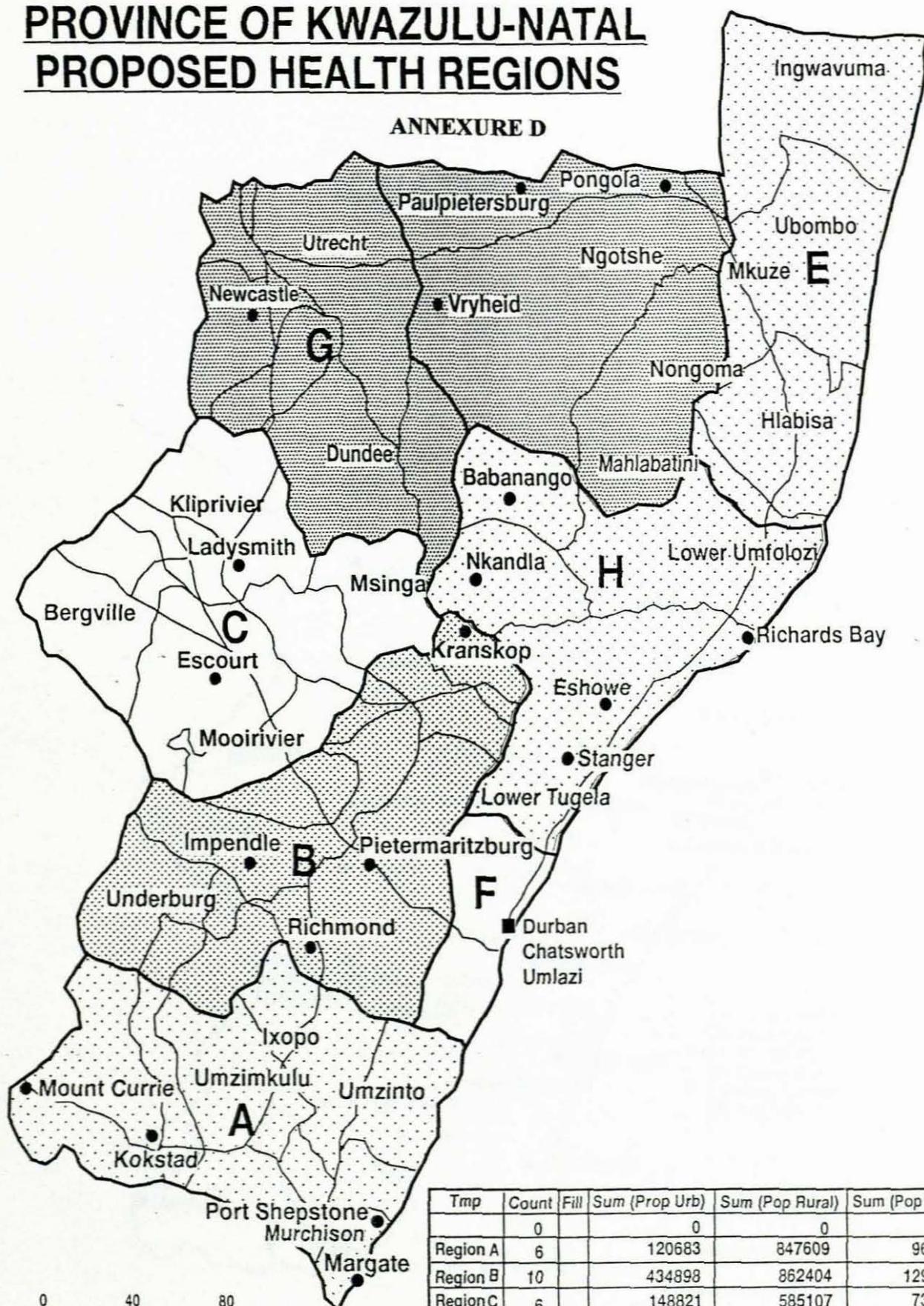
APPLICATION TO CARRY OUT RESEARCH : MRS N.J. DLAMINI

- . I enclose a copy of Conditions for use of Departmental Facilities for Research; for information, as well as the forms mentioned in the document (H32/1/2 and H32/1/3).
- . I am already in possession of completed form H32/1/3 by officer mentioned above.
- . On receipt of completed H32/1/2, as well as research plans/protocols a decision regarding authority to proceed will be made.

.....
Dr. P. Haselau
Senior Medical Superintendent
PH/ssn

PROVINCE OF KWAZULU-NATAL PROPOSED HEALTH REGIONS

ANNEXURE D



Tmp	Count	Fill	Sum (Prop Urb)	Sum (Pop Rural)	Sum (Pop Total)
	0		0	0	
Region A	6		120683	847609	968292
Region B	10		434898	862404	1297302
Region C	6		148821	585107	733928
Region D	6		63085	553915	617000
Region E	3		8587	478557	487144
Region F	7		1958723	744903	2703626
Region G	6		316465	415105	731570
Region H	8		168673	998093	166766

ANNEXURE E

KWAZULU - NATAL

