

**A DESCRIPTIVE STUDY OF THE KNOWLEDGE
OF MOTHERS WHO DELIVER PREMATURE
BABIES REGARDING THE CAUSES OF
PREMATURE DELIVERY**

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**A research report submitted to the Faculty of Health Sciences,
University of the Witwatersrand, Johannesburg in partial fulfilment
of the requirements for the degree of Master of Science (Nursing) in
the branch of Midwifery.**

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DECLARATION

I, Manda Roselina Nzhadzhaba, hereby declare that this research report is my own work. It is being submitted in partial fulfilment of the degree of Master of Science (Nursing - Midwifery) at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination at this or any other University.

Date

DEDICATION

Dedicated to my parents and my two
daughters for their encouragement and
support.

ABSTRACT

Premature delivery is the major contributing factor to perinatal mortality and morbidity (Prazuck and Tall, 1993). A descriptive survey study of the knowledge of mothers who deliver premature babies of gestational age ranging between 28 and 32 weeks regarding the causes of premature delivery was conducted. The study setting was the Coronation Mother and Child Hospital. The participants were recruited over a three month period. A descriptive survey design was used for this study. Every mother who delivered a premature baby was used in the sample. The size of the sample was 104. Data were collected using a structured interview schedule. Data collected were analysed using descriptive statistics. The findings of the study showed that the mothers who deliver premature babies knew the causes associated with premature deliveries. The majority of them agreed that continuous standing (62,5%), being involved in fighting (87,5%), strenuous work (87%), strenuous exercise (93,3%), falling (92,3%), high blood pressure (65,4%), alcohol (77,9%), smoking (74%), drugs (76,9%) and premature rupture of membranes (88,5%) could cause premature delivery.

The findings of the study can be utilized at the antenatal clinic in health education programmes to teach pregnant mothers to know and understand factors associated with premature delivery.

However, it appears that this knowledge often does not influence them to change their practice as mothers were found to continue smoking and drinking alcohol. Further research is needed to discover how to change practices.

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CHAPTER ONE

1.1 INTRODUCTION

Premature delivery is a major contributing factor to perinatal mortality and morbidity (Prazuck and Tall, 1993). According to statistics at Coronation Mother and Child Hosp 1 469 premature infants were delivered between January and December 1996. The total number of deliveries was 6,259.

Jones and Collins (1996), state that preterm labour symptoms are ambiguous, lack a meaningful label and may be attributed to the normal discomfort of pregnancy. Results of their grounded theory study found that women use strategies such as self-treating, ignorance, positive thinking and waiting to deal with preterm labour symptoms. The women notified their health care professionals as a last resort and only when symptoms could no longer be controlled.

Main (1988) states that there are four main obstetric diagnoses that result in preterm delivery. They are preterm labour, premature rupture of membranes, maternal obstetric complications and foetal distress. A large number of risk factors have been associated with preterm birth. Reproductive factors include demographic risks, behavioural risks, health care risks, medical conditions, predating pregnancy and current pregnancy complications.

1.2 PROBLEM STATEMENT

Prazuck and Tall (1993) state that premature labour continues to be a problem facing most of the hospitals in the world. Nearly 70% of all neonatal mortality is associated with preterm delivery and during the neonatal period, preterm infants are 40 times more likely to die than infants born at term. Preterm infants who survive are at increased risk for cerebral palsy, hydrocephaly, blindness, deafness, respiratory illness and complications which develop as a result of mismanagement of premature delivery.

At the outset it should be recognised that a significant number of preterm births are associated with pregnancy termination for maternal compromise. This accounts for 20-40% or more of all preterm deliveries (de Souza, 1994).

At Coronation Mother and Child Hospital, the total number of deliveries ranged between 460-573 per month in 1996. The number of preterm births ranged between 31 and 70 per month in 1996. The premature babies had to be hospitalised for a long period of time i.e. from four to eight months, which is costly to the State.

1.3 RESEARCH QUESTION

What is the knowledge of mothers who deliver premature babies regarding the causes of premature labour?

1.4 OPERATIONAL DEFINITIONS

Premature infants: For the purpose of this study premature infants will be defined as babies delivered between 28 and 32 weeks of gestation. This date may either have been determined by sonar, palpation or last menstrual period. This date will be compared against that determined by the paediatrician.

Knowledge: This is the range of information which guides practices as measured by questions.

Causes: Are the factors which might lead to premature deliveries.

1.5 OBJECTIVES OF THE STUDY

- To determine whether the mothers who deliver premature babies know the risk factors associated with premature delivery.
- To make recommendations regarding information that should be included in health education programmes for pregnant women i.e. self care of pregnant mothers.

1.6 SIGNIFICANCE OF THE STUDY

The findings of the study will be utilised at the antenatal clinic in the health education programmes to teach pregnant women to know and understand factors associated with premature delivery. This information is important for self-care. At present an educational programme does exist but does not appear to address factors associated with premature labour and delivery.

1.7 CONCLUSION

In this chapter the background to the study has been described. The problem statement and research question have been explained and objectives of the research have been identified.

CHAPTER TWO

2.0 LITERATURE REVIEW

In this chapter literature relating to premature delivery is reviewed. The literature reviewed highlighted the significance of age, maternal infection, work, nutrition, cigarette smoking, premature rupture of membranes, multiple pregnancy and hypertension in relation to premature delivery. Much of the literature reviewed is more than 10 years old. A literature search pertaining to knowledge of the mothers who deliver premature babies regarding causes of premature deliveries did not reveal much in recent research.

Mamelle, Laumon and Lazar (1984: 311) state that premature birth and its consequences rank as the major cause of perinatal morbidity and mortality. It has been estimated that one third of children born before 31 weeks of gestation die and that a quarter of those who survive are handicapped. They furthermore stated that the recently recorded decrease in the premature birth rate could be considered as being the result of the techniques used to prevent the woman from going into premature labour, as well as to an improvement in antenatal care.

Papiernik (1984: 317) states that there are predictive factors contributing to an increased risk of preterm labour. They are divided into two main categories, i.e. a group of obstetric conditions such as placenta praevia and uterine bleeding, and those

of social origin, such as marital and socio-economic status.

Kramer, McLean, Eason and Usher (1992) demonstrated that maternal under nutrition increases the risk of preterm birth, i.e. pregnant mothers who do not eat nutritious foods such as proteins, fresh vegetables and fruit, meat and carbohydrates have an increased risk of preterm birth.

Smith, Weinman, Reeves and Wait (1992) state that teenage mothers especially those who are poor and black, are at greater risk of preterm deliveries, low birthweight infants and medical complications. Teenage mothers tend not to eat nutritious food and they generally do not attend antenatal clinic frequently.

Robert and Creasy (1993) state that global societal problems such as teenage pregnancy, which rose by almost 20% between 1986 and 1989, and the increasing use of illicit drugs such as cocaine and its attendant incidence of preterm births of 21% to 50%, are but two examples of major societal problems that affect the preterm birth rate.

The added burden of premature delivery and subsequent health needs of the infant may increase socio-economic dependence. Premature babies need prolonged hospitalisation which is costly (Robert and Creasy, 1993).

Jones and Collins (1996) identify the high risk factors of premature delivery as follows:

a) Demographic Risk Factors

- maternal age 17 - 19 or 35 - 40 years
- non-white
- low socio-economic status
- unmarried
- limited education

b) Behavioural psycho social risk factors

- smoking
- weight loss or low weight gain
- inadequate prenatal care
- illicit drug and alcohol use

c) Biophysical risk factors

(i) Pregnancy biophysical risks

- prior preterm labour or delivery
- prior second trimester loss
- uterine myomata or anomaly
- cervical incompetence

(ii) Current pregnancy biophysical risks

- bleeding after 12 weeks
- cervical dilatation - 1cm or effacement
- placenta praevia or abruptio placentae
- pregnancy induced hypertension
- anaemia

- head engaged or breech engaged at 32 weeks
- preterm rupture of membranes
- intra-uterine device implanted in uterus
- foetal anomaly
- abdominal injury or trauma or surgery

Some of these factors will be discussed in more detail.

2.1 FACTORS ASSOCIATED WITH PREMATURE DELIVERIES

2.1.1 Age

Hoffman and Bakketeig (1984: 5466) state that age is a risk factor for both low birth weight and preterm deliveries. Both the very young woman and the woman with advanced maternal age are at risk. Furthermore, teenage mothers having their third birth have an extremely high risk of preterm delivery. Women who have delayed childbearing after the age of 30 are also at risk for preterm delivery.

Chamberlain (1984) writes that the youngest group (14 - 19 years) in their study showed a significant reduction in birth weight compared with the other age groups for all stages of gestation throughout pregnancy, including the period before 37 weeks.

Kaltreider, Frank and Kohl (1980) state that the incidence of prematurity is higher where maternal age is under the age of 15 years.

2.1.2 Maternal infection

Hoffman and Bakkeiteig (1984: 549) report that maternal diseases and complications during pregnancy can cause preterm delivery. Michael, Lucas and Cunningham (1993) reported that urinary tract infection may be associated with preterm labour and delivery. They go on to say that pyelonephritis causes preterm labour.

Carey, Yaffe and Catz (1993: 809) reported that a variety of conditions have been associated with an increased risk of preterm delivery or low birth weight. Clinical evidence of infection manifested by the presence of organisms in the amniotic fluid is common in cases of preterm labour and premature rupture of membranes. Most micro-organisms found in the amniotic fluid and placenta are also found in the vagina, especially in the cases of bacterial vaginitis.

Both low birth weight and preterm delivery are more likely to occur in the presence of chlamydia trichomatis.

Several authors have found an association between maternal infection and preterm delivery. Carey, Blackwelder, Nurgent, Matteson, Rao, Eschenbach, Lee, Rettig, Regan, Geromanar, Martin, Pastoerk, Gibbs and Lipscomb (1991) reported the association between a positive culture for ureaplasma urealyticum at 23 - 26 weeks gestation and the risk of preterm labour, low birth weight or preterm delivery. They found that ureaplasma urealyticum colonization was associated with lower maternal age, primiparity, non-white races, unmarried status, low income, low educational level, cigarette smoking and a high number of sexual partners.

Minkoff, Grunebaum, Richard, Schwarz, Feldman, Cummings, Clark, Pringle, Crombleholme and McCormack (1984: 970) report that the urine of the patients in their study who were colonized with bacterioides, subsequently had significantly smaller infants, more frequent preterm delivery, more frequent delivery of infants weighing less than (<) 2,500g and more frequent preterm premature rupture of the membranes.

Gravette, Hummel, Eschenbach and Holmes (1993) found non-specific vaginitis more frequently in the flora of patients in premature labour than in the vaginal flora of the control patients.

Miklos, Stevens, William and Howard (1988) state that there is a strong correlation between preterm birth and a history of both pelvic inflammatory disease and the use of an intrauterine contraceptive device. In nearly 25% of the cases, premature birth is preceded by rupture of the amniotic membranes. They go on to say that according to current thought, the uterine cavity can become infected in two ways: the passage of micro-organisms via the maternal circulation (haematogenous route), or from the vagina and cervix (ascending route). The latter suggests that the infection may be related to sexual activity of the woman. The interaction between micro-organisms and infected tissue can result in a weakening of the placental membranes and a release of prostaglandins sufficient to initiate labour.

Papiernik (1984: 324) reports that acute maternal pyelonephritis can stimulate

pre-term labour by a direct bacterial dissemination, or by an indirect systemic effect of fever.

Minkoff (1983) states that there is an association between various vaginal organisms with prematurity and premature rupture of the membranes.

Fowler, Melnick and Mathieson (1997) reported that in Africa, the pandemic of HIV has particularly affected women of childbearing age who have become infected through heterosexual transmission. They go on to say as the HIV epidemic matures in Africa, women are tending to become infected at higher rates and at younger ages in comparison with men. Sexually-transmitted diseases, particularly those associated with genital ulcers, are strongly associated with an increased risk for HIV infection. Syphilis has been linked to an increased risk of HIV infection, both in the developed and developing countries. There is a strong association of sexually-transmitted diseases with HIV infection in pregnant women. They go on to report that Ryder and co-workers found an increased risk of low birth weight and prematurity in infants born to HIV-infected women in Kinshasha and Zaire, when compared with uninfected women.

2.1.3 Work

Simpson (1993: 123) states that there is a lack of knowledge concerning the mechanism of premature labour. A favourite identifier is physical activity, especially that which results from strenuous effort required during employment. In

turn, physical activity is said to result in uterine contractions and hence premature effacement and dilation, leading to premature birth.

Mamelle, Laumon and Lazar (1984:309) report that there is a significant relationship between the prematurity rate and the number of high fatigue scores observed in the job. They investigated five sources of occupational fatigue, viz.: posture, work on an industrial machine, physical exertion, mental stress and environmental stress. They found strenuous working conditions were experienced by 23% of shop staff, 30% of shopkeepers, 35% of the medical staff, 38% of the skilled workers, 42% of the unskilled workers and 53% of the cleaning staff. The prematurity rate increased with number of hours worked. Weekly working time of 41 hours or more leads to a prematurity rate of 8,8% as against 5,3% for 40 hours and only 3,6% in a part time job. Increased risk involves strenuous working conditions. This led the researchers to hypothesize that a strenuous job may have a harmful effect on pregnancy. Moreover, the risk of prematurity increases when a woman accumulates two or more sources of occupational fatigue. There is also a combined effect between fatigue and working more than 40 hours per week. Furthermore, there is a higher risk of preterm labour for women who have to work in a standing position.

Papiernik (1984) reports that there is a close relationship between heavy physical work and preterm birth. Physical exertion can trigger uterine contractions and initiate preterm labour. This is confirmed by Hoffman and Bakketeig (1984) who show that physical over-exertion is a result either of salaried or of domestic work

and is related to preterm delivery. Certain physical activities, such as moving furniture in the house or very demanding physical effort at work, are more prevalent among those women who delivered preterm. He further reported that there is a cumulative effect associated with the lifting of heavy objects and previous preterm births.

Simpson (1993: 1232) states that the prematurity rate as defined by <37 weeks of gestation was 8.3% in women with the highest fatigue score (unskilled workers, cleaning staff, shop assistants, shopkeepers) and 2.7% in the group with the lowest fatigue score (teachers, office staff, skilled workers). The highest preterm delivery rate and the highest incidence of low birth weight <2,500g were associated with employment requiring heavy physical effort. Factors that appear to be associated included cleaning, carrying heavy loads and prolonged standing. These same factors are said to be related to higher frequencies of uterine contraction.

Tafari, Naeye and Gobezi (1980) studied working women in Addis Ababa, Ethiopia. Women undergoing heavy physical activity delivered infants whose birth weights were significantly lower than those of less physically active mothers on a similar diet (3,060g vs 3,270g). Although some variables known to affect prematurity were addressed, such as smoking more than 10 cigarettes a day, certain other confounders were apparently not taken into account e.g. anaemia, bacteriuria and high blood pressure. Tafari, McDonald, McDonald, Armstrong (1988) confirm the above findings. In their study they found that heavy lifting and long hours at work were

believed to be related to premature delivery.

Chamberlain (1984) reports that all women work at home, some are also in paid employment at a formal place of work. In addition working women have an aggravating factor of having to travel between the two places of work and home. Furthermore, any specific hazards, in either the home or the work place, may be detrimental (e.g. chemicals or radiation) as they may increase the risk of preterm delivery. Mamelle, Laumon and Lazar (1984) show an increased risk of preterm labour from 7 to 13% among unskilled women who worked less than 40 hours as compared with those who worked more than 45 hours a week.

Carey, Yaffe and Catz (1993) report that prolonged periods of standing were associated with a moderately increased risk of preterm delivery.

Mamelle, Laumon and Lazar (1984) state that pregnant mothers exposed to toxic chemicals, pesticides, household sprays, cleaners and lifting heavy weights may deliver prematurely. Exposure to extremes of temperature and humidity may cause a woman to deliver prematurely. The most consistent and clear cut findings are the association between delivery and an index of occupational fatigue. Measures of posture, machine work, physical effort, repetitive gestures and environmental components of the work place need to be considered.

Prolonged standing and long hours of working are related to low educational level of mothers and this increases the risk of preterm delivery.

2.1.4 Nutrition

Chamberlain (1984: 808) reports that the influence of diet is difficult to isolate from other factors of socio-economic background. He writes that poor nutrition was associated with preterm delivery. He suggests that there may be an association between poor nutrition and the strength of the membranes, which could correlate with premature rupture of membranes.

Kristal and Rush (1984) report that pregnancy increases nutrient needs, most obviously for foetal and placental growth. It also causes changes in maternal metabolism and body composition. They continue to say that women of lower socio-economic status eat less. In some populations this is due to a low intake of meat or fresh fruit and vegetables.

2.1.5 Cigarette Smoking

Kyrklund-Blomberg and Cnattingius (1998) report that smoking is associated with increased risks of abruptio placentae, placenta previa, preterm premature rupture of membranes and intrauterine growth restriction, and is also associated with decreased risk of pre-eclampsia. These complications may in turn influence the risk of preterm birth.

Meyer, Jonas and Tonascia (1996) state that three complications of pregnancy viz. placenta praevia, abruptio placentae and premature rupture of membranes are more common in smoking mothers. All three are precursors of premature birth. They

suggested that smoking during pregnancy is due to ignorance or to selfishness. Women either do not know the facts about the dangers, or they do not care about the foetus.

Kaltrieder, Frank and Kohl (1980: 18) report that there is an increased risk for lower gestational age in smokers. Women who smoke tend to have smaller placentas, an increased incidence of abruptio placenta, placenta praevia, and premature rupture of the membranes. These risks increase in proportion to the number of cigarettes smoked, e.g. smoking more than four cigarettes per day. These complications may be related to maternal and foetal hypoxemia due to carboxyl-haemoglobin.

2.1.6 Premature rupture of membranes

Chamberlain (1984: 311) states that the relationship of premature rupture of membranes to premature expulsive uterine contractions is well known. There are a number of conditions associated with premature rupture of membranes, such as incompetence of the cervix, polyhydramnios, multiple pregnancy and vaginal infection. Parry-Jones and Priya (1976) have demonstrated a significant decrease in the elasticity of those membranes which rupture prematurely. When one considers it in relation to preterm labour, if spontaneous premature rupture of the membranes occurs after 32 weeks of gestation, most obstetricians would accelerate labour should no contractions follow within 48 hours because of the risk of intrauterine infection. Should premature rupture of membranes occur before 26 weeks they would delay delivery and treat the patient accordingly.

2.1.7 Multiple Pregnancy

Hoffman and Bakketeig (1984: 539) state that multiple births are far more likely than singleton births to result in preterm delivery. Also, within multiple births, race is still an important factor of the same relative magnitude for each preterm gestational age group. They report that preterm birth is more common in blacks than in whites.

Multiple births delivered before 33 completed weeks of gestation range from 11% to 13% in a study done in Minnesota and Norway. Preterm delivery (before 37 completed weeks) has been reported in 28,2% of twin pregnancies occurring over a 10 year period, 1968-1977, in Aberdeen, Scotland. Hoffman and Bakketeig (1984) go on to state that a study done in Norway between 1967-1973 provides direct confirmation that monozygous twins are at high risk for preterm delivery. Further examination of these twin pregnancies revealed that the increased incidence of preterm delivery was due primarily to an increased rate of spontaneous rupture of membranes.

Kaltreider, Frank and Kohl (1980) report that an increased intrauterine volume encourages premature labour. In their study multiple pregnancy made up 10% of the number of known cases of preterm labour. Multiple pregnancy may be associated with a degree of uterine growth indicating that the uterus cannot enlarge beyond a certain point (Chamberlain, 1984).

Papiernik (1984) also reports that twin gestations represent about 1,2% of all pregnancies and 2,4% of the newborns, but preterm labour is one of the main

complications at a rate of 35% to 40%. He goes on to say that twin pregnancies are a direct cause of one sixth of all preterm births.

2.1.8 Hypertension

Kaltreider et al (1980) state that the incidence of premature deliveries was higher in mothers suffering from chronic hypertension as compared with mothers with gestational hypertension.

In 1984, Chamberlain (309) confirmed this finding stating that raised blood pressure has been known for a long time to be associated with low birth weight.

2.1.9 Sexual intercourse

Chamberlain (1984: 312) reports that female sexual orgasm in late pregnancy has been suggested as a stimulus to preterm labour. He states that the prostaglandins in semen and the release of prostaglandins by the uterus during orgasm stimulate contractions.

More recently, Read and Klebanoff (1993) report an association between sexual intercourse during pregnancy, vaginal organisms and preterm delivery. Seminal fluid contains prostaglandins, which could stimulate uterine contractions when absorbed through the vaginal mucous. Orgasm may lead to the release of oxytocin and uterine contractions. In addition, coitus during pregnancy has been implicated in bacterial contamination of the amniotic fluid with resultant fluid infection and increased perinatal mortality. Frequent sexual intercourse may introduce micro

orgasms from the vagina into the cervix, thereby beginning a process of deciduitis that culminates in preterm delivery.

Lumley and Astburgh (1982) stated that sexual activity might cause preterm labour. They go on to say that sexual intercourse for a pregnant woman is more dangerous to the foetus, than the mother. Female orgasm produces painful and prolonged uterine contractions in pregnancy and with concurrent or subsequent foetal bradycardia, can lead to preterm labour.

2.1.10 Vaginal bleeding

Papiernik (1984) reports that vaginal bleeding may be associated with preterm labour. It may be that bleeding in pregnancy is more common in women with pre-existing abnormalities of the uterine cervix, e.g. carcinoma of the cervix and fibroids.

2.1.11 Anaemia

Kaltrieder, Frank and Kohl (1980: 19) state that the incidence of premature labour varies inversely with the haemoglobin level. Increased rates of premature labour were observed at all haemoglobin levels below 11%. Furthermore there is a risk of increased premature delivery among patients with sickle cell anaemia.

2.1.12 Stress

Simpson (1993) states that psychosocial stress is particularly high in mothers whose

babies were born preterm.

Karen (1997) states that when community resilience is lacking, residents living in substandard conditions may experience challenges to health status in the form of physical manifestations, mental health effects, and social consequences. Lack of safety, increased rates of infection, illness and injury cause stress.

Palyzzia and Houde-Quimby (1996) state that domestic violence is a community-based problem requiring a community-based response. Violence against women is experienced by girls and women of all ages and occurs among all sectors of society. Abuse may be physical, emotional, sexual or economic.

King and Ryan (1996) report that women who are pregnant while in an abusive relationship are more likely to deliver low birth weight babies, unlike the unabused women. They go on to say that when women present with sexually-transmitted diseases, human immunodeficiency virus, and recurrent vaginal infections, the health provider should definitely assess for the presence of abuse. When asked, many abused women report that they are sexually abused, and/or raped by their partners. They often suspect these men to have multiple sexual partners. This leads to stress of recurrent episodes of abuse, causing the women to deliver premature babies. This is confirmed by Sheridan (1996) who states that violence during pregnancy causes serious health problems with links of multiple maternal risk factors such as anaemia, smoking, alcohol and drug use.

Copper, Goldenberg, Das, Elder, Swain, Norman, Ramsey, Cotroneo, Collins, Johnson, Jones and Meier (1996) also report that psychosocial factors such as stress, anxiety, and depression have been associated with increased rates of prematurity and low birth weight.

2.1.13 Previous premature labour

Papiernik (1984) more recently confirmed Rush's findings (1979) that a previous preterm delivery is known to be a most valuable predictive factor of increased risk for preterm labour in subsequent pregnancies.

Hoffman and Bakketeig (1984) also substantiate Rush's findings. They state that if a mother's first birth was preterm the second delivery will be preterm. If the two births are preterm deliveries then the risk of a third preterm delivery increases to 28,4%. If only one of two previous births was delivered preterm, the risk of the third birth being preterm is increased also, especially if the previous preterm delivery was the second, rather than the first oirth.

Paz, Otano, Gadow and Castilla (1992) report that patients with previous miscarriages are at risk of having another miscarriage.

Meis, Michielutte, Peters, Wells, Sands, Coles and John (1995) confirm Paz et al's findings. They state that a history of a previous abortion or preterm delivery was associated with spontaneous preterm birth.

2.1.14 Drug abuse

Robert and Creasy (1993) report that preterm labour and delivery are often thought of as a social disease rather than as a medical disorder. As has already been discussed on page 6, global societal problems such as the birth rate for teenagers which rose almost 20% between 1986 and 1989 or the increased use of illicit drugs such as cocaine and its attendant incidence of preterm births of 21% to over 50% are but two examples of major societal problems that affect the preterm birth rate. It may be advisable to consider the same concept for preterm delivery risk, combining well established known risk factors such as smoking, poor nutritional status and previous delivery. They suggest that this risk approach could be used to address smoking cessation and stress reduction, treatment of symptomatic bacteriuria and cessation of drug abuse. This would help to focus lay attention on the importance of all these factors on preterm birth and also on reproductive outcome in general.

2.1.15 Alcohol abuse

Halmesmäki, Teramo, Widness, Clemons and Ylikorkala (1990) report that maternal alcohol abuse during pregnancy is the most common prenatal cause of foetal damage. Infants who were delivered by heavy drinking mothers exhibited foetal alcohol effects, and birth weight, length and head circumferences were below the tenth normal percentile.

Church, Ernest and Abel (1998) state that maternal alcohol abuse during pregnancy is associated with several alcohol-related birth effects. A pattern of these birth

effects consisting of prenatal or postnatal growth retardation, craniofacial anomalies and nervous system defects are called foetal alcohol syndrome.

2.2 Interventions to prevent preterm delivery

Jean, Konte, Roberts, Creasy and Russel (1988) report that preterm delivery is currently the most significant cause of neonatal morbidity and mortality. It is important to note that the risk assessment and subsequent patient intervention could be implemented fully on the population that received early prenatal care. The preterm birth rate was directly related to socio-economic status.

Papierniek (1984) defines risk factors that could be modified during the course of pregnancy to include unhealthy life-style and excessive physical exertion, or stress, since it has previously been shown that a precise relationship exists between difficult working conditions and higher rates of preterm deliveries. Patients were advised on how to recognise uterine contractions and how to identify the relationship between physical activity and the onset or increased frequency of uterine contractions. Pregnant mothers can reduce physical activities by various behaviour modifications, such as, walking slowly, not running after a bus and not lifting heavy weights. When physical stress is obviously related to the environment of work, e.g. standing long hours at work, the only means available to reduce activity effectively is to propose a health related leave of absence from work.

Dyson, Crites, Ray and Armstrong (1991) state that it is important to detect preterm delivery early using prevention programmes like patient education and self palpation for uterine contractions in high risk cases of preterm delivery. Daily home monitoring of uterine contractions in high-risk patients can also increase the early detection of preterm labour. This allows for more successful treatment and improved outcome.

Calvin, Hobel, Michael and Ross Rose (1994) report a reduction in the preterm birth rate from 6.8 to 2.4% with a programme of education regarding early detection of preterm labour symptoms. By providing enhanced prenatal care services, including psychosocial health education and nutritional services to pregnant mothers, the incidence of premature birth can be reduced in a cost-effective manner. They go on to state that patient education to prevent preterm birth is associated with lower preterm rates in low-risk patients who receive instruction when compared with those who do not.

Thomas, Garite, Donald, Cheryl, Hamer and Manuel (1990) state that twin gestations managed without daily home uterine activity monitoring and nursing support, have been reported to have a 50% rate of preterm birth when labour is diagnosed.

Freda, Damus, Anderson and Brustman (1990) state that empowerment of women with knowledge about the subtle nature of preterm labour symptoms is the first step

in helping them to access needed treatment in a timely fashion. Patient education is a major component of all preterm birth prevention programmes. The risks, resources, demographics and experiences of these populations are so disparate, that it is essential to obtain measures of baseline knowledge, pre-test and post-test data which reflect comprehension of new information and knowledge retention over time before widespread implementation of patient education.

Brustman, Langer, Anyaegbunam, Belle and Merkatz (1990) report that patients must continue to be educated about the signs and symptoms of impending labour so that they will be appropriately informed about their options and responsibilities should labour ensue prematurely.

2.3 CONCLUSION

From the above mentioned studies it appears that preterm delivery is associated with cigarette smoking, premature rupture of membranes, vaginitis, not eating nutritious foods, standing for a long time without resting, twin pregnancy and pregnant women with a history of previous preterm delivery. To prevent premature delivery, the pregnant woman must be educated about home monitoring of contractions.

CHAPTER THREE

METHODOLOGY

3.1 INTRODUCTION

This chapter describes the research design, the research instrument, the study population and sampling method, study sample and sample size. The pilot study, data analysis and ethical considerations are also described.

3.2 Research Design

The design of this study was a descriptive survey. The flexibility and broadness of the scope of a survey enables coverage of a wide range of topics which yield substantial amounts of information from a large group of people in a relatively economic manner (Polit and Hungler, 1991: 193).

Nieswiadomy (1991) outlines the advantages of the survey as follows:

- it paves the way for more comprehensive study,
- it provides data about the present situation or event,
- it has a high degree of representation and
- it takes place in a natural environment .

The survey was therefore found to be the appropriate design for this study in which a wide range of information was to be secured in order to give a description of the knowledge of mothers who deliver premature babies regarding its causes.

3.3 RESEARCH INSTRUMENT

An interview schedule and patient records were used in order to collect data.

3.3.1 *Reasons for the structured interview schedule.*

It is one of the survey research techniques that has been proved effective for collecting information in such topics as the attitudes and practices of large numbers of people (Polit and Hungler, 1991: 279). Furthermore, it is an effective technique in gathering information about events that took place prior to investigation and that could then only be recalled by the subjects or people studied (Polit and Hungler, 1991: 279). The method for data collection was the personal interview which is known as a useful method of collecting survey data because of the depth and quality of the information it yields and it ensures 100% return of the instruments (Polit and Hungler, 1991: 281).

The researcher conducted the interviews herself using a structured interview schedule. A standardised information sheet was read to the participants in South Sotho or English.

The interview schedule was organised in three sections, namely Section A, Section B and Section C (see Appendix A).

A structured interview schedule was designed to gather information on data relating to:

- Demographics
- Health habits
- Obstetric data

3.3.1.1 SECTION A

This section consisted of 19 questions which elicited demographic and employment data.

3.3.1.2 SECTION B

Section B consisted of health habits data made up of questions on cigarette smoking, use of alcohol and drugs and sexual intercourse.

3.3.1.3 SECTION C

This was the last section of the interview schedule and consisted of obstetric data and factors associated with preterm deliveries. This section aimed to determine the knowledge of the mothers regarding the causes of prematurity.

3.3.2 Records

The birth register book was used as a source of data collection for the following purposes:

- Confirmation of participants gestational age by palpation, sonar and dates.
- Labour and birth outcome data.

3.4 STUDY POPULATION

The study population was all patients who delivered at Coronation Mother and Child Hospital in Johannesburg during November 1997 to January of 1998. It became necessary to use January for data collection because permission had not been granted in October 1997 to commence the study.

The total number of deliveries at Coronation Mother and Child Hospital ranged between 460-573 per month in 1996. The number of premature births ranged between 31 and 70 per month in 1996.

Table 3.1 Premature delivery statistics at Coronation Maternal and Children's Hospital: 1994 - 1996

	1994	1995	1996	TOTAL
January	5	4	33	42
February	4	9	33	44
March	7	19	32	58
April	8	10	31	49
May	10	6	33	49
June	20	29	44	103
July	18	29	64	121
August	16	17	43	76
September	6	13	31	50
October	3	55	43	101
November	15	29	38	82
December	6	50	51	107
TOTAL	118	270	474	

The above data shows a higher incidence of premature births in the last three months

of 1995 and 1996, with an average of 133 premature births in the October to December period.

3.5 SAMPLING METHOD

A convenience method of sampling was utilized for this study.

3.5.1 Study Sample and Size

Given the higher incidence of premature birth in the last three months of 1995 and 1996, it was decided to collect data during the same period of the year i.e. November 1997 to January of 1998

The sample comprised of both booked and unbooked mothers who delivered premature babies at Coronation Mother and Child Hospital during a three month period with a gestational age ranging between 28 and 32 weeks. The sample was drawn from mothers whose babies were admitted to the special care unit.

3.6 PILOT STUDY

A pilot study was conducted on five mothers who delivered premature babies, to test the instrument for reliability. It helped the researcher in gaining experience with the instrument. After the pilot study no alterations were made.

3.7 DATA COLLECTION PROCEDURE

For each of the participants the following information was given:

- The researcher introduced herself to the participants.

- Explanation of the aim and purpose of the study was given to the participants.
- She explained that the findings of the study would be utilized at the antenatal clinic in health education programmes to teach pregnant women to know and understand factors associated with premature delivery.
- Each participant was assured that all information given by her would be confidential.
- The participant was given the assurance that the information she gave would be used only for research purposes.
- She was further assured that the researcher had her safety and psychological well-being in mind before and during the research. So no harm would or was intended to any of the participants.
- The participants were told that the interview would take approximately 15 minutes of their time.
- Refusal to participate would not influence the care which her baby received.
- The participants were informed that they could withdraw from the study at any time should they wish to do so. Withdrawal from the study would not influence the care which the baby received.

Each participant was made aware that participation in the study was not compulsory. Verbal consent was obtained from the participants. The researcher carried out the interviews and this enabled her to explain unclear questions. On conclusion of the

interview, each participant was thanked for her time and information. Those participants who felt upset because they thought that they may have caused their babies to be born prematurely would be referred to the psychologist for counselling.

3.8 CODING AND PROCESSING OF DATA

Code numbers for each question and subquestion were developed during formulation of the interview schedule. Data were transferred from the interview schedule and processed in the Department of Human Research in Pretoria. Statistical processing was done. Frequency distribution and percentages were used to analyse and describe the data.

3.9 DATA ANALYSIS

After completion of the data collection at the end of January 1998, the researcher embarked on the process of cleaning to ensure that all the information for each of the participants has been correctly entered. The researcher made use of frequency distribution and percentages for analysing data.

3.10 VALIDITY AND RELIABILITY

Validity is a reflection of the relationship between a concept being measured and the measurement itself. It is a judgement of the extent to which the data sheet and questionnaire (structured interview schedule) reflects the measurable outcome variable as it is intended to do (Seaman and Verhonick, 1982: 237).

The instrument for this study was discussed with experts in obstetrics and midwifery. They all agreed that the instrument manifested face validity by assessing the format and layout of the questionnaires (structured interview schedule) i.e. all the questions are appropriately spaced and the wording was clear.

The instrument was evaluated for content validity to ensure that all the objectives had been addressed. Results of the validity testing were consequential and all reviewers found the instrument to be experimentally valid as it measured what it was purporting to measure. Five subjects who were interviewed in the pilot study understood the questions clearly.

The researcher used the same interview schedule, same explanation and the same room for interviewing the subjects. Reliability was increased by the researcher conducting all interviews herself. The researcher made use of an interview schedule i.e. she asked the same questions to each participant in the same manner. Thus reliability was increased.

The subjects were interviewed privately in a side ward. The subjects were ensured that whatever they told the researcher would be kept confidential. They were also advised that they did not need to give their names.

3.11 ETHICAL CONSIDERATIONS

In order to proceed with this study on mothers who deliver premature babies, permission was obtained from the following:

- The Superintendent of Coronation Mother and Child Hospital (see Appendix B).
- The Head of the Department of Obstetrics and Gynaecology, Coronation Hospital. Verbal permission was given. (see Appendix B).
- The Senior Nursing Services Manager of the Maternity section. Verbal permission was granted (see Appendix B).
- The University of the Witwatersrand Committee for Research on Human Subjects (see Appendix C. Protocol Number M971118).
- The respondents i.e. mothers who deliver premature babies. Verbal consent was obtained from the participants. The participants who felt upset because they thought that they may have caused their babies to be born prematurely would be referred to the psychologist for counselling (see Appendix D).

3.12 CONCLUSION

In this chapter the study design, methods, sampling, instruments, pilot study and analysis have been described. Ethical considerations and validity and reliability have also been addressed and steps toward improving reliability have been described.

CHAPTER FOUR

FINDINGS OF THE STUDY

The findings will be discussed in relation to the demographic data, health habits and obstetric data. One hundred and four mothers who delivered premature babies between the gestational ages of 28 and 32 weeks were interviewed. The participants were interviewed 6 hours after delivery before they were discharged from the Coronation Mother and Child Hospital. None of the participants were distressed that they needed to be referred.

FINDINGS FOR SECTION A

4.1 DEMOGRAPHIC DATA

4.1.1 Age

The age distribution of the mothers is shown in Table 4.1.

Table 4.1: The age of participants (n = 104)

AGE	FREQUENCY	PERCENT
16 - 20	21	20,1
21 - 25	31	29,8
26 - 30	27	26
31 - 35	12	11,5
36 - 40	9	8,7
> 40	4	3,9
TOTAL	104	100

One half (49.9%) of the participants who delivered premature babies were aged between 16 and 25 years.

4.1.2 Ethnic Group

Table 4.2: Distribution of respondents by ethnic group (n = 104)

	Frequency	Percent
Black	60	57.7
Coloured	38	36.5
Indian	3	2.9
White	3	2.9
TOTAL	104	100.0

The majority of the respondents were blacks (57.7 %) followed by Coloureds (36.5%). These findings are consistent with the population profile which the hospital serves.

4.1.3 Home Language

A range of different home languages were used by the respondents. Table 4.3 shows the languages and the frequency which these languages were used by the participants.

Table 4.3: Home language spoken by participants (n = 104)

	Frequency	Percent
Afrikaans	34	32.7
Zulu	22	21.2
S.Sotho	14	13.5
N. Sotho	12	11.5
English	9	8.7
Xhosa	7	6.7
Tswana	6	5.8
TOTAL	104	100.0

The most common languages used were Afrikaans (32,7%) and Zulu (21,2%). Together these made up the majority of the respondents. The Sotho languages comprised 25% of the respondents.

It was important to know the respondent's home language so that the researcher could translate where the respondent did not understand.

4.1.4 Marital Status

Marital status of the respondent is shown in Figure 4.1. Of the 28 respondents who were married, 15 (53,5%) were legally married and 13 (46,4%) were married according to cultural norms.

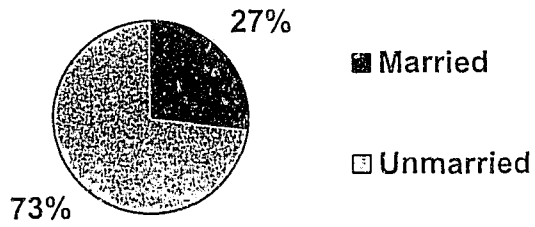


Figure 4.1: Distribution of marital status of respondents

4.1.5 Highest Standard Passed

The level of education of the respondents is shown in Figure 4.2

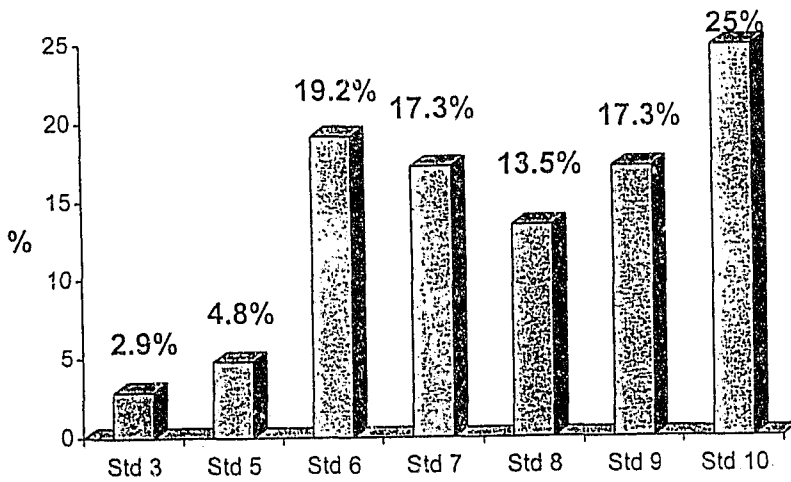


Figure 4.2: Highest standard passed at school (n=104)

Of the 104 respondents, 55.8 % (58) had a standard 8 or higher. Thus the sample could be considered to be literate with more than half having ten years of education.

4.1.6 Employment

Figure 4.3 shows the percentage of employed and unemployed respondents.

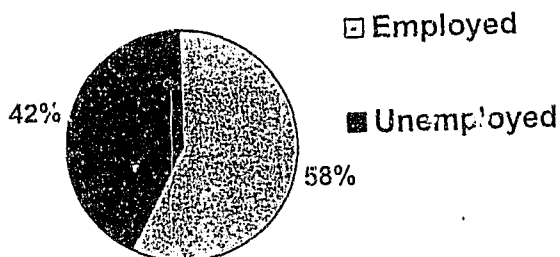


Figure 4.3: Distribution of employment of respondents

More than half (58%) of the respondents were employed at the time of the study.

4.1.7 Type of work

The type of work which the sixty employed respondents were engaged in is reflected in Table 4.4.

Table 4.4: Type of work that the employed respondents were doing (n = 60)

	Frequency	Percentage
Domestic workers	26	43,4
Shop assistants	18	30
Security guards	6	10
Hairdressers	4	6.6
Factory workers	4	6.6
Mailsorting	2	3.4
Total	60	100

Despite the relatively high level of education of the sample, those who were employed were in semi-skilled and unskilled employment. These types of employment may be physically demanding, especially as they may require many hours of standing.

4.1.8 The Shift Worked

The shift worked by the employed respondents is shown in Figure 4.4.

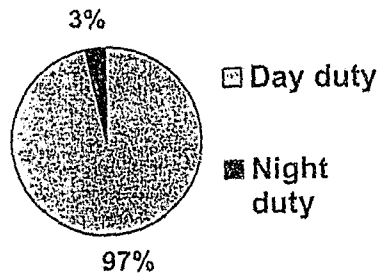


Figure 4.4: Type of shift worked by employed respondents (n = 60)

Only a small percentage (3%) of working respondents worked night duty. Nobody worked during the evening.

4.1.9 Hours Worked (n = 60)

The number of hours worked by the employed respondents is as follows:

2 (3.3%) respondents worked 6 hours per day

28 (46%) respondents worked 8 hours per day

6 (10%) respondents worked 10 hours per day

24 (40%) respondents worked 12 hours per day

Thus most of the respondents who worked, worked an average of eight hours per day. However 24 respondents stated that they worked 12 hours per day.

4.1.10 Hours Worked per Week

The number of hours which the employed respondents worked per week is shown in

Figure 4.5.

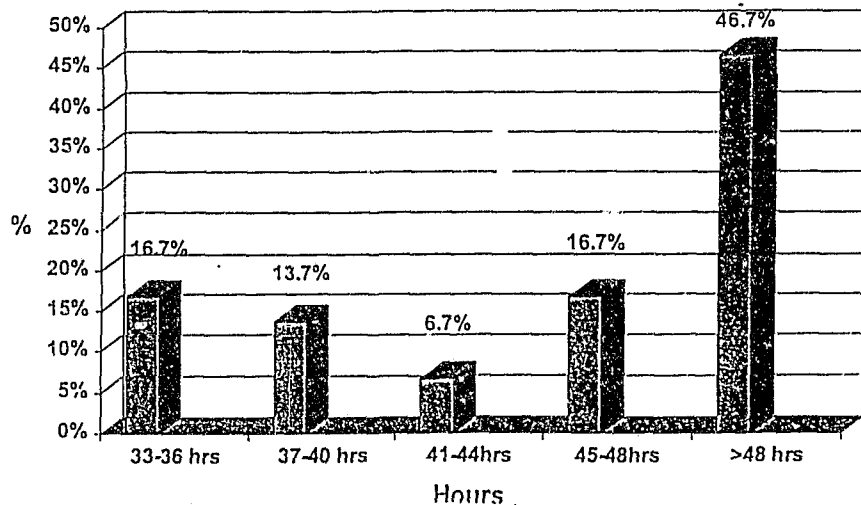


Figure 4.5: Hours worked by employed respondents per week

The majority (70.1%) of the respondents worked more than 40 hours per week which is tiring and can lead to premature delivery.

4.1.11 Number of Hours per Day Spent on Feet

The number of hours which the working mothers spent on their feet is shown in Table 4.5.

Table 4.5: Hours spent standing on feet per day (n=60)

	Frequency	Percentage
> 6 hours	40	66.7
4-6 hours	8	13.3
2-4 hours	4	6.7
< 2 hours	8	13.3
TOTAL	60	100

The majority (66.7%) of the working mothers who had delivered premature babies had spent more than 6 hours on their feet per day while at work.

4.1.12 Physical Exertion

On the question of whether the work that the respondents do, demanded a lot of physical exertion or not, 39 participants (65%) said yes and 21 (35%) said no. Of those participants who said that their work demanded a lot of physical exertion, 39 (65%) found it to be tiresome.

4.1.13 Machines Used

Of the working mothers, 30 (50%) stated that they used a machine at work. An equal number stated that they did not use a machine whilst at work.

4.1.14 The Type of Machine the Respondents Used at Work

Of the 30 respondents (50%) who stated that they used a machine at work:

21(70%) used vacuum cleaners

5 (16.6%) used a sewing machine

4(17.3%) used a teller machine

4.1.15 Strenuous Work at Own Home

Figure 4.6 shows whether the respondents work strenuously at their homes or not.

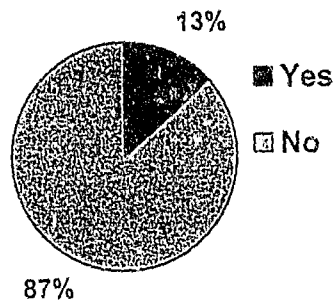


Figure 4.6: Distribution of mothers who considered housework to be strenuous

(n=104)

Only 13% of all mothers found work at home to be strenuous.

4.1.16 Type of Houses

The types of houses in which the respondents lived were described as follows: -

- Twenty seven respondents (26%) were domestic workers and lived in the backyard room of their employers' homes
- Twenty five respondents (24%) lived in flats and
- Thirty three lived in houses. Of those who lived in houses
- Six (5.8%) lived in a one bedroomed house
- Eighteen (17,3%) lived in a two bedroomed house
- Nineteen (18,3%) lived in a three bedroomed house
- Nine (8.7%) women lived in an informal settlement

4.1.17 The Number of People Staying in the Dwelling With the Respondents

Thirty (28,8%) of the respondents were staying with one person, 37 (35,6%) of the respondents were staying with three to four people in the house and 37 (35.6%) of the respondents were staying with more than five people in the house.

FINDINGS FOR SECTION B

Two aspects were addressed in this section. The first one being what the women thought caused their premature labour and the second, more general, being the causes of premature labour.

4.2 HEALTH HABITS

Subjective reasons given for premature delivery included:

- Five (4.8%) respondents were battered by their husbands,
- Three (2.9%) respondents had health problems, e.g. high blood pressure,
- Fifteen (14.4%) respondents had stress/tension,
- Eight (7.7%) respondents said it was due to the fact that their work was very strenuous and tiresome,
- Seventy-three (70.1%) respondents never knew what caused their babies to be born prematurely.

4.2.1 Cigarette Smoking

Fifty nine respondents (56,7%) smoked cigarettes and 45 (43,3%) were non-smokers.

4.2.1.2 Of the 59 respondents who smoked:

- Ten (17%) respondents smoked 1 - 2 cigarettes per day.
- Fifteen (25.4%) respondents smoked 4 -5 cigarettes per day.
- Thirty-four (57.6%) respondents smoked more than 5 cigarettes per day.

4.2.1.3 Seventy-seven (74%) of the respondents felt that smoking could cause the baby to be born early, whilst 11 (10.6%) felt that it was not a cause and 16 (15.4%) of the respondents said that they did not know whether smoking could cause premature delivery.

4.2.2 Alcohol Intake

Thirty six respondents (34,6%) consumed alcohol, whilst 68 (65,4%) stated that they did not.

4.2.2.1 Of the 36 respondents who consumed alcohol, 20 (55.5%) drank 2-3 bottles of beer per day and 16 (44.5%) took more than four bottles of beer per day.

4.2.2.2 On the question of whether alcohol could cause the baby to be born early or not, 81 (97.9%) respondents said yes, 15 (14.4%) said no and 8 (17.7%) stated that they **did not know**.

Thus the majority of mothers thought that alcohol may be a cause of premature delivery.

4.2.3 Drug Abuse

4.2.3.1 All of the respondents (104) stated that they did not use drugs.

4.2.3.2 The majority of the respondents, 80 (77%), said that drugs could cause the baby to be born early. Twenty-four respondents (23%), said that they did not know whether drugs could cause the baby to be born early.

4.2.4 Sexual Intercourse

On the question of whether the respondents had sexual intercourse during pregnancy, 79 (76%) stated that they had had sexual intercourse and 25 (24%) stated that they had not.

4.2.4.1 Of the 79 respondents who said they had had sexual intercourse, 31 (39.3%) said they had sexual intercourse once per week during pregnancy,

20(25.3%) had sexual intercourse once every two weeks during pregnancy and 28(35.4%) had had sexual intercourse once a month during pregnancy.

4.2.4.2 Of the 79 respondents who had sexual intercourse during pregnancy, 73 (92,5%) had sexual intercourse during the last week of pregnancy and six (7.5%) stated that they not.

4.2.4.3 Further analysis of the 73 (92%) who had sexual intercourse during the last week of pregnancy showed that 70 (95,9%) had had it once during the night and three (4,1%) had had it twice during the night.

FINDINGS FOR SECTION C

4.3 OBSTETRIC DATA

4.3.1 Eighty five (81,7%) respondents had attended antenatal clinic during their pregnancy and nineteen (18.3%) respondents had never attended the clinic.

4.3.2 Thirty (28,8%) respondents had previously delivered small babies and 74 (71.2%) had not.

4.3.3 Of the 30 respondents who had had a previous premature delivery, none knew the reasons why their babies delivered prematurely.

4.3.4 This question (see Appendix A) sought to determine the knowledge of mothers who had delivered premature infants. Table 4.6 illustrates the level of knowledge of these mothers.

Table 4.6: Knowledge of mothers who deliver premature babies regarding risk factors associated with premature delivery (n=104).

All the mothers who delivered premature babies were asked whether the following could cause premature delivery or not.

	YES		NO		DON'T KNOW	
	Frequency	Percentages	Frequency	Percentages	Frequency	Percentages
a. Smoking	77	74%	11	10,6%	16	15,4%
b. Alcohol	81	77,9%	15	14,4%	8	7,7%
c. Drugs	80	77%	0	0%	24	23%
d. Water breaking early	92	88,4%	3	2,9%	9	8,7%
e. Not eating nutritious food, vegetables, fruits, proteins, meat, carbohydrates.	65	62,5%	8	7,7%	31	29,8%
f. Sexual intercourse	16	15,4%	59	56,7%	29	27,9%
g. Falling	96	92,3%	4	3,85%	4	3,85%
h. Involved in fighting	91	87,5%	3	2,9%	10	9,6%
i. Strenuous exercise	97	93,3%	2	1,9%	5	4,8%
j. Strenuous work	91	87,5%	3	2,9%	10	9,6%
k. Be on feet for a long time	65	62,5%	3	2,9%	8	7,7%
l. Stress	26	25%	40	38,5%	38	36,5%
m. Excessive vaginal bleeding	90	86,5%	2	1,9%	12	11,6%
n. Traditional herbal healing	33	31,7%	68	65,4%	3	2,9%
o. Vaginal discharge which is not treated	51	49%	18	17,3%	35	33,7%
p. High blood pressure	68	65,4%	3	2,9%	33	31,7%
q. Fibroids in the uterus	57	54,8%	2	1,9%	45	43,3%
r. Lack of iron in blood	54	51,9%	14	13,5%	36	34,6%
s. Having a lot of liquor (water)	81	77,9%	8	7,7%	15	14,4%
t. Having twins	39	37,5%	37	35,6%	28	26,9%
u. Exposure to extreme heat	69	66,3%	12	11,6%	23	22,1%
v. Exposure to extreme humidity	47	45,2%	22	21,2%	35	33,6%
w. Lifting heavy weights	94	90,4%	2	1,9%	8	7,7%
x. Exposure to toxic chemicals	82	78,8%	6	5,8%	16	15,4%
y. Exposure to pesticides, household spray	55	52,9%	20	19,2%	29	27,9%

Women who had premature babies were aware of the causes of premature deliveries.

Conditions that were mentioned by more than 75% of the mothers as being a cause of premature delivery were:

- Strenuous exercise (93,3%)
- Falling (92,3%)
- Lifting heavy weights (90,4%)
- Water breaking early (88,5%)
- Involved in fighting (87,5%)
- Strenuous work (87%)
- Excessive vaginal bleeding (86,5%)
- Exposure to toxic chemicals (78,8%)
- Having a lot of liquor (water) (77,9%)
- Alcohol (77,9%)
- Drugs (76,9%)

B. Conditions that were mentioned by 50 -74% of the mothers as being cause of premature delivery were:

- Smoking (74%)
- Exposure to extreme heat (66,3%)
- High blood pressure (65,4%)
- Not eating nutritious food (e.g. vegetables, fruits, proteins, meat and carbohydrates) (62,5%)
- Being on feet for a long time (62,5%)
- Fibroids in the uterus (54,8%)
- Exposure to pesticides, household spray (52,9%)
- Lack of iron in blood (51,9%)

C. Conditions that were mentioned by < 50% of the mothers as being a cause of premature delivery were:

- Vaginal discharge which is not treated (49%)
- Exposure to extreme humidity (45,2%)
- Having twins (37,5%)
- Traditional herbal healing (31,7%)
- Stress 25%
- Sexual intercourse 15,4%

4.4 CONCLUSION

In this chapter the findings of the study have been described. Use has been made of frequencies and percentages to explain the findings. Findings from this study which may be considered important are age of the mothers, marital status, type of employment and hours spent at work, as well as mothers knowledge regarding premature delivery. In the next chapter the findings of the study will be discussed.

CHAPTER FIVE

DISCUSSION OF THE FINDINGS

In this chapter the findings of the study are discussed and compared with the literature.

5.1 DEMOGRAPHIC DATA

5.1.1 Age

The findings of this study are consistent with Hoffman and Bakketeig's study (1984: 456), which identified relatively young maternal age as a risk factor for both low-weight and preterm deliveries. Young maternal age is associated with an increased rate of preterm delivery, also teenage mothers having their third birth have an extremely high risk of preterm delivery. Women who have delayed childbearing until after the age of 30 are also at relatively increased risk. In this study 20,2% of the respondents were in the age group 16 to 20 years.

5.1.2 Ethnic Group

In this study the majority of the respondents who delivered premature babies were Blacks i.e. 57.7%, as compared to 2.9% Whites. However, this finding needs to be considered in the light of the proportion of ethnic groups who deliver at the hospital. Most of the patients who deliver at Coronation Mother and Child

Hospital are Black and few are White. However, Hoffman and Bakketeig (1984: 542) found that premature deliveries occurred mostly in Blacks. In their findings they suggest that it does not imply that White mothers receive "better" antenatal and delivery care compared with Black mothers.

5.1.3 Home Language

A range of different home languages were used by the respondents. (See Table 4.3). The most common languages used were Afrikaans (32.7%) and Zulu (21.2%). Together these made up the majority of the respondents. The Sotho languages combined accounted for 25% of the respondents. This is due to the fact that Coronation Mother and Child Hospital serves a diverse community in which the dominant language is Afrikaans. Zulu is the most common African language spoken in Johannesburg.

5.1.4 Marital Status

In this study the majority of the respondents (73%) were unmarried. Papiernik (1984: 330) states that single women illustrate the importance of social aspects in preterm birth. These women are often isolated in terms of social and family integration, and have the lowest access to help, information and protection. Such factors may explain the high rate of preterm birth seen in single women, particularly in adolescent pregnancies. In addition, single women often feel some uncertainty about their desire for the pregnancy and often want to hide their pregnancy from those in their immediate social environment.

5.1.5 Highest Standard Passed at School

An association has been shown to exist between lower educational level and an increased risk of preterm delivery (Hoffman and Bakketeig, 1984: 549). Fifty five percent of the respondents had standard 8 or higher. Whilst the majority of the respondents in this study had more than ten years of education, this level of education has only prepared them for semi-skilled and unskilled occupations.

5.1.6 Employment

5.1.6.1 Type of work

The findings of this study are consistent with the findings of the study done by Chamberlain (1984: 307) which states that all women work at home. Some are also in paid employment at a formal place of work. This is an added load to the pregnant woman who has to travel between the two places of work.

The majority of the respondents in this study were employed (57.7%). In this study 43,3% of the employed, worked as domestics and 30% as shop assistants. Furthermore, the respondents who were employed were doing semi-skilled and unskilled work. This may be a reflection of their educational status. Hoffman and Bakketeig (1984: 549) state that higher risks for preterm birth are associated with semi-skilled and unskilled work i.e. manufacturing, clerical sales jobs.

5.1.6.2 Hours worked per day

In this study 50% of the respondents worked ten or more hours per day.

This is consistent with Luke, Mamelle, Keith, Papiernik, Munoz, Minogue and

Johnson's (1995: 857) finding that working more than 10 hours per day increases the risk of preterm delivery.

5.1.6.3 Hours worked per week

Mamelle, Laumon and Lazar (1984: 313) analysed the occupational category, the weekly working hours and daily working timetable of women with regard to the prematurity risk. The prematurity rate averaged 8.3% in shop staff, unskilled workers and cleaning staff, whereas the other occupational categories (teachers, office staff and skilled workers) did not exceed an average of 3.5%. Furthermore, a weekly working time of 41 hours or more led to a prematurity rate of 8.8% as against 5.6% for 40 hours.

The findings of this study are consistent with the above, because 41(68%) of the respondents worked more than 48 hours per week.

5.1.6.4 Hours per day spent on feet

Prolonged standing is associated with an increased risk of low birthweight and premature delivery (Mamelle, Laumon and Lazar, 1984: 825). In this study, the majority of the respondents who worked, i.e. 66.7%, spent more than six hours per day on their feet while at work.

5.1.6.5 Physical exertion

Occupational fatigue is associated with risk of preterm delivery (Luke, Mamelle,

Keith, Papiernik, Johnson et al 1995: 860). Homer, Beredford and James (1990) observed that women working in highly strenuous jobs were twice as likely to deliver prematurely.

Mc Donald, Mc Donald, Armstrong, Cherry, Nolin and Robert (1988) found that lifting heavy weights at least 15 times per day was associated with an increased risk of preterm birth.

In this study 65% of the working respondents said their work demanded a lot of physical exertion which was tiresome, but none were lifting heavy objects.

5.1.6.6 Machine used at work

In this study 50% of respondents used machinery at work. Concerning the occupational fatigue factors, previous investigators have studied the working element of job fatigue, giving an initial idea of the role of strenuous work (load-carrying, work on industrial machines with effort and vibrations) (Mamelle, Laumon and Lazar, 1984: 320). The machine does not cause premature delivery. It depends whether the mother has to lift the machine or whether the machine is heavy or causes vibration.

In this study 70% of machines used were vacuum cleaners which are not heavy.

5.2 HEALTH HABITS

Subjective reasons given for premature delivery included family violence, (4.8%)

high blood pressure (2.9%), stress (14.4%) and strenuous work (7.9%). One third of the respondents had some idea of what could have caused premature delivery. Seventy percent of respondents never knew what caused their babies to be born early.

5.2.1 Cigarette Smoking

Many poor pregnancy outcomes have some association with intra-uterine hypoxia (Lee, 1998) Fetal breathing movements have been observed to decrease within 5 minutes of maternal cigarette smoking. Cigarette smoking has been associated with a variety of unwanted pregnancy effects, such as placenta praevia, abruptio placentae and pregnancy loss. Tobacco smoking has been associated with decreased fetal growth and with preterm delivery (Lee, 1998: 76-77). In this study the majority of the respondents (57,6%) smoked 5 or more cigarettes per day. Furthermore, 74% of the respondents knew that smoking could cause babies to be born prematurely.

5.2.2 Alcohol Intake

Maternal alcohol abuse during pregnancy is associated with several alcohol-related birth defects (Church, Ernest and Abel, 1998: 85). Hoffman and Bakketeig (1984: 550) reported that lifestyle factors, particularly alcohol consumption have been found to be related to an increased risk of preterm delivery. In this study 34,5% of respondents consumed alcohol. In addition, 77.9% of the respondents agreed that alcohol consumption could cause premature deliveries.

5.2.3 Drug Abuse

The most frequently reported adverse perinatal outcome associated with prenatal cocaine exposure are prematurity, fetal growth restriction, low birth weight and placenta abruptio. All of these effects have been attributed to the vasoconstrictive actions of cocaine and vascular disruption. Cocaine causes contractions and an increase in premature rupture of membranes and causes premature delivery (Plessinger and Woods, 1993: 104-105). In this study none of the respondents were taking drugs. The majority of the respondents (77%) knew that drugs could cause premature deliveries.

5.2.4 Sexual Intercourse

Sexual orgasm of the women in pregnancy has been suggested as a stimulus to preterm labour (Chamberlain, 1984: 313). In this study 76% of respondents had had sexual intercourse during pregnancy. Furthermore, 92% of the respondents had sexual intercourse during the last week of their pregnancy before delivery prematurely. Although the majority (92%) of respondents had sex, there was quite a number who did not know whether intercourse caused labour and also the majority (56%) of them thought that it did not cause labour. This has implications for health providers and education.

5.3 OBSTETRIC DATA

In this study 92 (88.4%) of the respondents knew that water breaking early causes premature delivery.

In this study the majority of respondents knew that the following could cause premature delivery e.g. water breaking early 92 (88.4%), falling 96 (92.3%), involved in fighting 91 (87.5%), strenuous exercise 97 (93.3%), strenuous work 91 (87.5%), excessive vaginal bleeding 92 (86.5%) and lifting heavy weights 94 (98.8%).

5.4 CONCLUSION

In this chapter the findings of the study were discussed and compared with the literature. Main factors which were consistent with the study are maternal age, ethnic group, marital status, type of work hours worked per day, hours worked per week, hours spent on feet per day, physical exertion, cigarette smoking and sexual intercourse.

CHAPTER SIX

6. LIMITATIONS OF STUDY, RECOMMENDATIONS AND CONCLUSION

In this chapter the summary, the limitations, recommendations and conclusion of the study are discussed.

6.1 SUMMARY

Premature delivery is a major contributing factor to perinatal mortality and morbidity. At the Coronation Mother and Child Hospital the total number of deliveries ranged between 460-573 per month in 1996. The number of premature births ranged between 31 and 70 per month in 1996. The premature babies had to be hospitalized for a long period of time, which is costly.

The objective of the study was to determine whether the mothers who deliver premature babies knew the risk factors associated with premature delivery. To make recommendations regarding information that should be included in health education programmes for pregnant women i.e. self-care of pregnant mothers.

Literature was reviewed and the most important factors which were identified were age, maternal infection, work, nutrition, cigarette smoking, premature rupture of membranes, multiple pregnancy, hypertension, sexual intercourse, vaginal bleeding, anaemia, previous premature labour, stress and drug abuse.

The research design was a descriptive survey and data were collected using a structured interview schedule and maternity records. The study population was all patients delivering at the Coronation Mother and Child Hospital, Johannesburg during the three month period from November 1997 to January of 1998. A convenience method of sampling was utilized for this study. A pilot study was conducted on five mothers who delivered premature babies. Data were analysed making use of frequency distributions and percentages.

The maternity records were used to confirm the gestational age by sonar, dates and fundal height, of which the gestational age was ranging between 28 and 32 weeks.

The findings of the study were described in relation to the demographic data, health habits and obstetric data. The findings were compared with the literature. The mothers who delivered premature babies knew the causes of premature deliveries.

6.2 LIMITATIONS OF THE STUDY

- The researcher intended to interview the respondents in English or South Sotho, however a number of participants spoke Zulu, Xhosa, North Sotho or Tswana. The researcher had to accommodate them, by using the language that they understood. This may have resulted in some information being misunderstood or lost.

- Due to the fact that the study was conducted at Coronation Mother and Child Hospital only, the researcher cannot generalize the findings.
- In the “yes”; “no”; “don’t know” type of questions responses were potentially affected by guessing, i.e. actual knowledge could not be determined.

6.3 RECOMMENDATIONS

Recommendations are made for nursing practise, nursing education and nursing research.

6.3.1 Nursing Practice

- There is a need to establish public awareness of the dangers of smoking, taking of alcohol and drugs while pregnant e.g. boxes of cigarettes have information warning that smoking may cause premature delivery.
- Pre-pregnancy education to women who plan to fall pregnant. Women must be informed about the dangers of alcohol and drugs on the pregnancy and foetus. Furthermore, they should be advised on how to stop these habits.

At Coronation Mother and Child Hospital educational programmes which are provided to pregnant women cover the following information:

a) Antenatally

Nutrition, proper clothing, medication and exercise.

b) During Labour

When to go/come to the hospital, e.g. when they see or experience labour signs such as show and having contractions.

c) Postnatally

Breastfeeding, perineal care, and immunization.

There is no health programme which teaches pregnant women about the causes of premature delivery and how to avoid risk factors associated with premature delivery, e.g. smoking, taking of alcohol and drugs. The researcher suggests that health education could include the following aspects:

- **Work**

Pregnant mothers must avoid working with heavy machines, or lifting heavy objects as this could cause premature delivery. The pregnant mothers must be educated that they must not stand for long periods of time at work without resting as this could cause preterm delivery. If their work requires that they must be continuously on their feet, they can be advised to seek early maternity leave.

- **Sexual activities**

The patients, who tend to have recurrent premature deliveries or abortions, should be advised to avoid sexual activities because it will cause premature delivery. Those who do not have problems with recurrent premature deliveries must practise safe and hygienic sex, by using condoms, to prevent infection which can cause premature

deliveries. Any rashes and vaginal discharges should be reported to health professionals, to be treated early, because if not, they can be associated with premature deliveries.

6.3.2 Nursing Education

The nursing staff must be encouraged to attend in-service training, conferences, workshops and journal clubs on how to give health talks to pregnant mothers about causes associated with premature deliveries, its prevention and management. They also need to keep up-to-date regarding the causes and management of premature labour and delivery.

6.3.3 Nursing Research

- Further research is needed to discover how to change practices because the mothers were found to continue smoking and drinking alcohol even if they appear to acknowledge the causes associated with premature delivery.
- Further research should be conducted to address the responses given in this study. An experimental approach could be conducted whereby the experimental group is given health education and the control group is not.
- Further research could be done, comparing the knowledge of the mothers who delivered premature babies to those who delivered term babies.
- The sample needs to be extended so that the findings can be generalized.

6.4 CONCLUSION

Thus, in conclusion, the objectives of the study have been met. The study has explored and described mothers' awareness of the risk factors associated with premature delivery. Recommendations have been made regarding information that should be included in health education programmes for pregnant women.

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APPENDIX A

QUESTIONNAIRE

A. DEMOGRAPHIC DATA

1. How old are you?
2. Which ethnic group do you belong?
3. What is your home language?
4. Are you married?
yes / no
5. If yes, how are you married?
 - i) legally
 - ii) culturally
6. What is the highest standard you have passed at school?
7. Are you working at present?
yes / no
8. If yes, what type of work are you doing?
9. During this last pregnancy, what shift did you work most often?
 - Day
 - Evening
 - Night

10. How long were the shifts usually worked?

4 hours

6 hours

8 hours

10 hours

12 hours

Double shift (specify hours)

11. How many hours per week do you usually work?

<20 hours

20 - 24 hours

25 - 28 hours

29 - 32 hours

33 - 36 hours

37 - 40 hours

41 - 44 hours

45 - 48 hours

> 48 hours

12. How many hours a day were you on your feet while at work?

less than 2 hours

2 - 4 hours

4 - 6 hours

more than 6 hours

13. Did your work demand a lot of physical exertion?

yes / no

14. If yes, was this physical exertion tiresome?

yes / no

15. Do you use any machine at work?

yes / no

16. If yes, what type of machine did you use?

.....

17. At home do you work strenuously doing house work?

yes / no

18. What type of a house are you living in?

.....

19. How many people are staying with you in that house, including yourself?

.....

B. HEALTH HABITS

1. Why do you think your baby was born early

.....

2. Do you smoke?

yes / no

3. If yes, how many cigarettes do you smoke per day?

.....

4. Can smoking cause the baby to be born early?

.....

5. Do you take alcohol?

yes / no

6. If yes, how much alcohol do you take per day?

.....

7. Can alcohol cause the baby to be born early?

yes / no / do not know

8. **Do you take drugs?**

yes / no

9. **What type of drugs are you taking?**

.....

10. **Can drugs cause the baby to be born early?**

yes / no

11. **Did you have sexual intercourse during pregnancy?**

yes / no

If yes, how often

12. **Specifically during the week of delivery, did you have sexual intercourse?**

yes / no

If yes, how often?

C. **OBSTETRICS DATA**

1) **Have you attended antenatal clinic during this pregnancy?**

yes / no

2) **Have you previously delivered a small baby too early?**

yes / no

3) **If yes, do you know what the reason was?**

yes / no

4) **Do you think the following can cause a baby to be born early?**

Answer yes / no / don't know.

	YES	NO	DON'T KNOW
a. Smoking			
b. Alcohol			
c. Drugs			
d. Water breaking early			
e. Not eating nutritious food (e.g. vegetables, fruits, proteins, meat, carbohydrates)			
f. Sexual intercourse			
g. Falling			
h. Involved on fighting			
i. Strenuous exercises			
j. Strenuous work			
k. Be on feet for a long time			
l. Stress			
m. Excessive vaginal bleeding			
n. Traditional herbal healing			
o. Vaginal discharge which is not treated			
p. High blood pressure			
q. Fibroids in the uterus			
r. Lack of iron in blood			
s. Having a lot of liquids (water)			
t. Having twins			
u. Exposure to extreme heat			
v. Exposure to extreme humidity			
w. Lifting heavy weights			
x. Exposure to toxic chemicals			
y. Exposure to pesticides, household spray			

APPENDIX B

Flat 84 Strijdomhof
Helen Joseph Hospital
AUCKLAND PARK
2006

The Superintendent
Private Bag Newclare
Coronation Hospital
NEWCLARE
2112

Dear Sir

Re: Application to conduct a Research

I am a third year Master of Science in Nursing student at the University of the Witwatersrand under the supervision of Ms P McInerney.

I am requesting permission to undertake my research in the Maternity Section of the Coronation Hospital. I intend to collect data from November 1997.

I am interested in the knowledge of mothers who had had premature deliveries regarding its causes.

Enclosed, please find a copy of the questionnaire and the information sheet.

Your consideration to this matter will be highly appreciated.

Yours sincerely

Ms M R Nzhadzhaba

Supervisor: Ms P McInerney

Flat 84 Strijdomhof
Helen Joseph Hospital
AUCKLAND PARK
2006

Professor J Hofmeyr
Head of Department: Obstetrics
and Gynaecology
Private Bag Newclare
Coronation Hospital
NEWCLARE
2112

Dear Professor Hofmeyr

Re: Application to conduct a Research

I am a third year Master of Science in Nursing student at the University of the Witwatersrand under the supervision of Ms P McInerney.

I am requesting permission to undertake my research in the Maternity Section of the Coronation Hospital. I intend to collect data from November 1997.

I am interested in the knowledge of mothers who had had premature deliveries regarding its causes.

Enclosed, please find a copy of the questionnaire and the information sheet.

Your consideration to this matter will be highly appreciated.

Yours sincerely

Ms M R Nzhadzhaba

Supervisor: Ms P McInerney

APPENDIX C

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

Division of the Deputy Registrar (Research)

COMMITTEE FOR RESEARCH ON HUMAN SUBJECTS (MEDICAL)

Ref: R14/49 Nzhadznaba

CLEARANCE CERTIFICATE

PROTOCOL NUMBER M971118

PROJECT

Descriptive Study of the Knowledge of the Mothers who Deliver Premature Babies Regarding the Causes of Premature Deliveries

INVESTIGATORS

Miss MR Nzhadznaba

DEPARTMENT

Nursing Dept, Coronation Hospital

DATE CONSIDERED

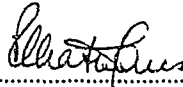
971128

DECISION OF THE COMMITTEE *

Approved unconditionally

DATE 980105

CHAIRMAN.....



.....(Professor P E Cleaton-Jones)

* Guidelines for written "informed consent" attached where applicable.

c c Supervisor: Mrs PA Mc Inemey

Dept of Nursing Dept, Coronation Hospital

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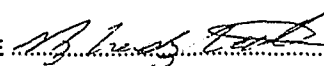
DECLARATION OF INVESTIGATOR(S)

To be completed in duplicate and ONE COPY returned to the Secretary at Room 10001, 10th Floor, Senate House, University.

I/we fully understand the conditions under which I am/we are authorized to carry out the abovementioned research and I/we guarantee to ensure compliance with these conditions. Should any departure be contemplated from the research procedure as approved I/we undertake to resubmit the protocol to the Committee.

DATE 15/1/98

SIGNATURE.....



PROTOCOL NO.: M 971118

PLEASE QUOTE THE PROTOCOL NUMBER IN ALL ENQUIRIES

APPENDIX D

UNIVERSITY OF THE WITWATERSRAND, JOHANNESBURG

DEPARTMENT OF NURSING EDUCATION

INFORMATION SHEET

My name is Manda Roselina Nzhadzhaba a third year Master's degree in Nursing Science (Midwifery) student at the University of the Witwatersrand.

I am doing a research on the knowledge of mother who delivers prematurely regarding its causes. The purpose of the study is to determine whether the mothers who deliver premature babies know the risk factors associated with premature delivery.

I would like you to be part of my study and would be grateful if you would answer the questions that I am going to ask you. It will take you approximately 15 minutes to answer the questions.

Your name is not needed in the study. All information given by you will not be divulged to other nursing staff and other mothers. Your participation is voluntary and you have the right to refuse to participate, or to answer any of the questions.

You can withdraw from the study at any time if you so wish. There will be no penalty for that, (that is you and your baby will still receive the same care). You are not going to be rewarded for participating in the study. If the participants are unhappy about the questionnaire, they will be referred to the Psychologists.

Author Nzhaozhaba M R

Name of thesis A Descriptive Study Of The Knowledge Of Mothers Who Deliver Premature Babies Regarding The Causes Of Premature Delivery Nzhaozhaba M R 1999

PUBLISHER:

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