THE RELATIONSHIP BETWEEN PREGNANCY INDUCED HYPERTENSION (PIH) SELF CARE KNOWLEDGE AND HYPERTENSION CONTROL AMONG PREGNANT MOTHERS AGED 18 TO 49 YEARS IN BINDURA DISTRICT

by

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ABSTRACT

Hypertension control among pregnant mothers with pregnancy induced hypertension (PIH) appears difficult to achieve. Part of the reason for poor control of hypertension in these women might be limited PIH self care knowledge. The purpose of this study was to examine the relationship between PIH self care knowledge and hypertension control among pregnant women with PIH in Bindura District. Orem's self care model guided this study. A descriptive correlational study design was used. A simple random sample of 78 participants was recruited and data collected using a mercury sphygmomanometer and stethoscope for the blood pressure levels and face to face interviews for sample demographics and PIH self care knowledge. The Demographic Data Questionnaire (DDQ) and PIH Self Care Knowledge Questionnaire (PIHSCKQ) developed by the investigator guided the face to face interviews. Data were analysed using descriptive and inferential statistics (Pearson Correlation Co-efficient). The SPSS.pc Statistical Package was used for data analysis. The results showed that PIH self care knowledge was generally good since 58 (74.3%) scored PIH self care knowledge scores above the mean score of 24 out of 48. Generally, hypertension control was adequate. Forty-three (55.1%) had blood pressure levels below the cut off level of 140/90mmHg. The correlation coefficient showed a very weak, non significant relationship (r=0.-175). Although the relationship was not statistically significant, the findings demonstrated that PIH self care knowledge has some influence on hypertension control. Continuous reinforcement of PIH self care knowledge skills is essential during antenatal teaching of clients.

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DEDICATION

To my late parents, Mrs. Sophia Besa and Mr. Stephen Besa. I finally did it. You have always wanted me to be a holder of a degree. I love and miss you.

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CHAPTER 1

BACKGROUND AND ORGANISING FRAMEWORK

Introduction

Pregnancy induced hypertension (PIH), also known as toxemia or pre-eclampsia is a form of high blood pressure in pregnancy and one of the leading causes of mortality and morbidity amongst pregnant women in Zimbabwe. Although the cause of PIH is unknown, certain factors are known to increase the risk of PIH, such risk factors include that PIH mostly affects young women with a first pregnancy, pregnant women younger than 20 years and those older than 40 years, women with multiple fetuses, pregnant diabetics, pregnant women with preexisting hypertension or previous episodes of pre-eclampsia or PIH and pregnant women with pre-existing renal disease. However, for Zimbabwe, it is disturbing to note that maternal mortality studies carried out in the rural areas of Masvingo and the Urban Province of Harare showed that PIH is one of the most common causes of death in both primiparous and multiparous women, (Zimbabwe Maternal Mortality Report, 2009).

PIH occurs in about 5% to 8% of all pregnancies and more severe cases are frequently associated with poor fetal and maternal outcomes both in developed and developing countries. This renders PIH a cause for great concern to public health in general and maternal and child health nursing in particular. In Zimbabwe for example, PIH is responsible for 8 – 10% of women who are at the risk of dying during pregnancy, at child birth or during puerperium; worse figures have been

reported in England and Wales where PIH is responsible for 18.4% of pregnant women's deaths (Barzil, 2001).

A high blood pressure above 140/90mmHg during pregnancy, proteinuria and oedema usually characterise PIH. Blood pressure level is more effectively controlled through enhancing the pregnant mothers' self care knowledge. However, it appears most pregnant women with PIH lack adequate knowledge to look after themselves during pregnancy in order to control the blood pressure level. This study therefore sought to examine the relationship between PIH self care knowledge and blood pressure control among pregnant women.

Problem Statement

Control of blood pressure among PIH patients appears to be difficult to achieve. The present investigator's personal experience as a nurse manager with antenatal PIH women revealed uncontrollably high blood pressure levels persistently above 140/90mmHg. A study carried out at Turku University reported similar findings of uncontrollable blood pressure levels in 14 PIH patients. The average systolic blood pressure was 153mmHg with a systolic blood pressure range of 130 to 190mmHg. The diastolic blood pressure levels were equally uncontrollable and averaged 105mmHg with diastolic pressure ranges of 86 to 111mmHg (Onusko, 2003).

Available literature indicates that there has been minimum attention on blood pressure control among PIH patients locally, regionally and globally. This study

therefore aimed at closing this gap in literature by highlighting the level of blood pressure control among PIH pregnant women in Bindura district.

Failure to control blood pressure in PIH is a cause for Maternal and Child Health concern because persistently high blood pressures result in preterm births, perinatal deaths and about 20 to 33% of maternal deaths (WHO, 2007). In developing countries such as Zimbabwe, major negative outcomes of uncontrolled blood pressure in PIH are further complicated by an increased number of Small for dates babies, maternal proteinuria and oedema, stillbirths and neonatal deaths (WHO Expert Committee, 2006). Velentgas et al (2004) expressed similar sentiments as their study yielded a 2.7 fold increased risk of low birth weight babies among normotensive women with PIH compared with the reference group.

Barzil (2001) reported that persistently high blood pressure levels in PIH are responsible for 10% of maternal deaths and 25% of fetal deaths. This is largely because with high blood pressure there is an increase in the resistance of blood vessels. This may hinder blood flow in many different organ's systems in the expectant mothers including the liver, kidneys, brain, uterus and placenta leading to poor maternal and fetal outcomes.

It is important to control blood pressure during PIH because if blood pressure is not controlled numerous more resultant problems such as placental abruption, intrauterine growth restriction, perinatal deaths and increased number of pregnant women who end up delivering by Caesarian Section will occur. The low socioeconomic status in Zimbabwe and lack of sophisticated equipment and resources

are a big problem in managing complications of this nature. It therefore becomes difficult to cater for the increasing complications of uncontrolled blood pressure in pregnancy. Focusing on increasing cognitive and in turn behavioral strategies to control blood pressure levels in PIH patients appears to be the best cost effective strategies. In this study, it was postulated that the level of PIH self- care knowledge is the most likely contributing factor to lack of blood pressure control among PIH patients.

Self- care knowledge of PIH encompasses the knowledge of skills that pregnant women with PIH have on how to control blood pressure. The knowledge of skills that range from knowledge of warning symptoms of PIH to knowledge of strategies of lowering or controlling the blood pressure. However, the amount of PIH self care knowledge among pregnant mothers with PIH has not been fully established. In Zimbabwe, Magaisa (2004) noted that 60% of mothers had knowledge on prevention of cancer but lacked knowledge on hypertension control. Furthermore, it appears mothers are well equipped with information on PIH rather than information on blood pressure control once diagnosed with PIH. The situation on low PIH self care knowledge appear to be uniform locally and regionally as reported in Tanzania by Kashanija (2008). Hoff (2005) echoed similar sentiments for the Ugandan situation and added that 64% of mothers had high PIH knowledge. However, knowing the disease condition itself is inadequate for self management of PIH. Mothers need to be equipped with PIH self management skills. It is this PIH self care knowledge which appears to be deficient largely due to lack of interaction between

the mothers and health workers as the majority of them deliver at home (Hoff, 2005). It then becomes clear that there is need for nurses to address PIH self care knowledge. This study therefore identified the amount of PIH self care knowledge possessed by mothers in Bindura district.

The majority of PIH cases with uncontrolled blood pressure occur in rural Zimbabwe where there are no skilled personnel, bad terrain, poor transport system and staff shortage. All these lead to many pregnant women in districts such as Bindura delivering at home, where there are no skilled manpower leading to preventable fatal complications. Verbal autopsies conducted by Dr Munjanja in (2009) showed that 32.8% of deaths due to PIH occurred at over 20 weeks of gestation due to seizures, severe headaches and generalised oedema in Zimbabwe. Harare Hospital in Zimbabwe, which receives referrals from urban and rural population recorded 17% of maternal deaths as well as 32% of still births from 11167 admissions of women suffering from Pregnancy Induced Hypertension (WHO, 2001). In addition, according to Owuso (2001) in his world bank report of (1993) 15% of national budget goes to health, 5% of which goes to Reproductive Health. With the cost of sophisticated equipment and hospitalization at 12% (Zimbabwe Maternal Mortality Report, 2009). Zimbabwe is likely to incur more costs in terms of drugs, intravenous fluids, human and other material resources; as well as hospitalization costs post Caesarean Section and for stabilization of other complications of seizures.

The relevance of self care in controlling blood pressure was clearly demonstrated following an experimental study in India by Kumari, Geetha and

Kadeeja (2003). At the beginning of the study, 95% of the study participants were neither aware of PIH nor knew how to control blood pressure in PIH. Following instillation of PIH self care knowledge, the blood pressure of 64% of the participants in the experimental group was stabilized and 21% of them had low blood pressure compared to baseline measurements. Participants in the control group continued to have fluctuating blood pressure levels and 30% of them had very high blood pressures. It is therefore clear that there is a relationship between PIH self care knowledge and blood pressure control. In the present study, the nature of the relationship was examined among PIH mothers in Bindura district.

Tsigas (2006) also demonstrated a link between PIH self care knowledge and blood pressure control. Her report pointed out that prenatal patient self care education and ongoing pre-eclampsia support for those diagnosed with PIH leads to a reduction in anxiety, improved patient compliance and improve such health outcomes as hypertension control.

Theoretical Framework

The self-care model by Dorothea Orem was used to guide this study. Orem's concepts most applicable to this study were self-care agent, self-care agency, self-care deficit and the supportive educative nursing system. Orem's model is also significant in that it considers the four central concepts of person, environment, nursing and health.

In this study, a person is viewed within the context of the pregnant woman with PIH. Applying Orem's model to this context, the pregnant woman then becomes

a self care agent with self care agency. Self care agency is the ability of a person to look after themselves (Fitzpatrick & Whall, 1996). This ability equates to the ability to control PIH blood pressure levels and in turn translates to the pregnant woman's level of PIH self care knowledge. Orem's model further envisages that a self-care agent has self-care demands. Self-care demands are influenced by self-care requisites such as health deviations (Fitzpatrick and Whall, 1996). If self-care demands exceed self-care agency, self-care deficit occurs. Similarly some pregnant women, by virtue of having PIH, are required to perform additional health maintenance behaviours to control blood pressure. This requirement is a health deviation self care requisite and it imposes a self -care demand on the pregnant woman.

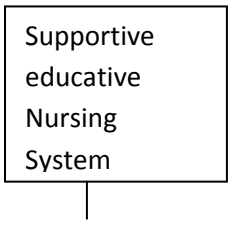
Orem views the environment to be the basic conditioning factors. The basic conditioning factors may include availability of human resources for example midwives, health promotion materials to equip the pregnant woman with necessary PIH self care knowledge. Nursing hence strengthens this environment in order to foster health or self- care.

Health, which equates to self -care according to Orem's model, is a result of interaction between the person, nursing and the environment. The term self-care means care that is performed by one's self. It is regarded as the deliberate action with an overall purpose related in meeting specific individual requirements for effective living. Self-care in this study was viewed as the pregnant women being able to perform and decide on responsible actions to take, so as to control blood pressure in PIH. In addition, PIH self care knowledge is believed to strengthen self care. Poor

PIH self-care knowledge is associated with poor fetal and maternal outcomes such as increased readmissions and increased maternal and infant mortality.

According to Orem (1991) nursing is a helping or assisting service to persons who are wholly or partly dependent. Nursing is a deliberate action, a function of the practical intelligence of nurses and action to bring about humanly desirable conditions in persons and their human services and other forms of care by its focus on human beings (Orem, 2001). The basic nursing system are wholly compensatory where the nurses accomplish the patients therapeutic self-care demands, partly compensatory where the nurse performs some of the self-care activities for the patient and the supportive educative system (Orem, 2001). In the supportive educative system the patient performs self-care activities while the nurse only supports. Once self care deficits are identified, supportive educative nursing system will be applicable to strengthen PIH self care knowledge. The self-care agents will then be empowered with knowledge, skill and experience to practice self-care and control blood pressure. A diagrammatic presentation of the application of Orem's self care model to this study is illustrated in Figure 1 overleaf.

Theoretical Framework



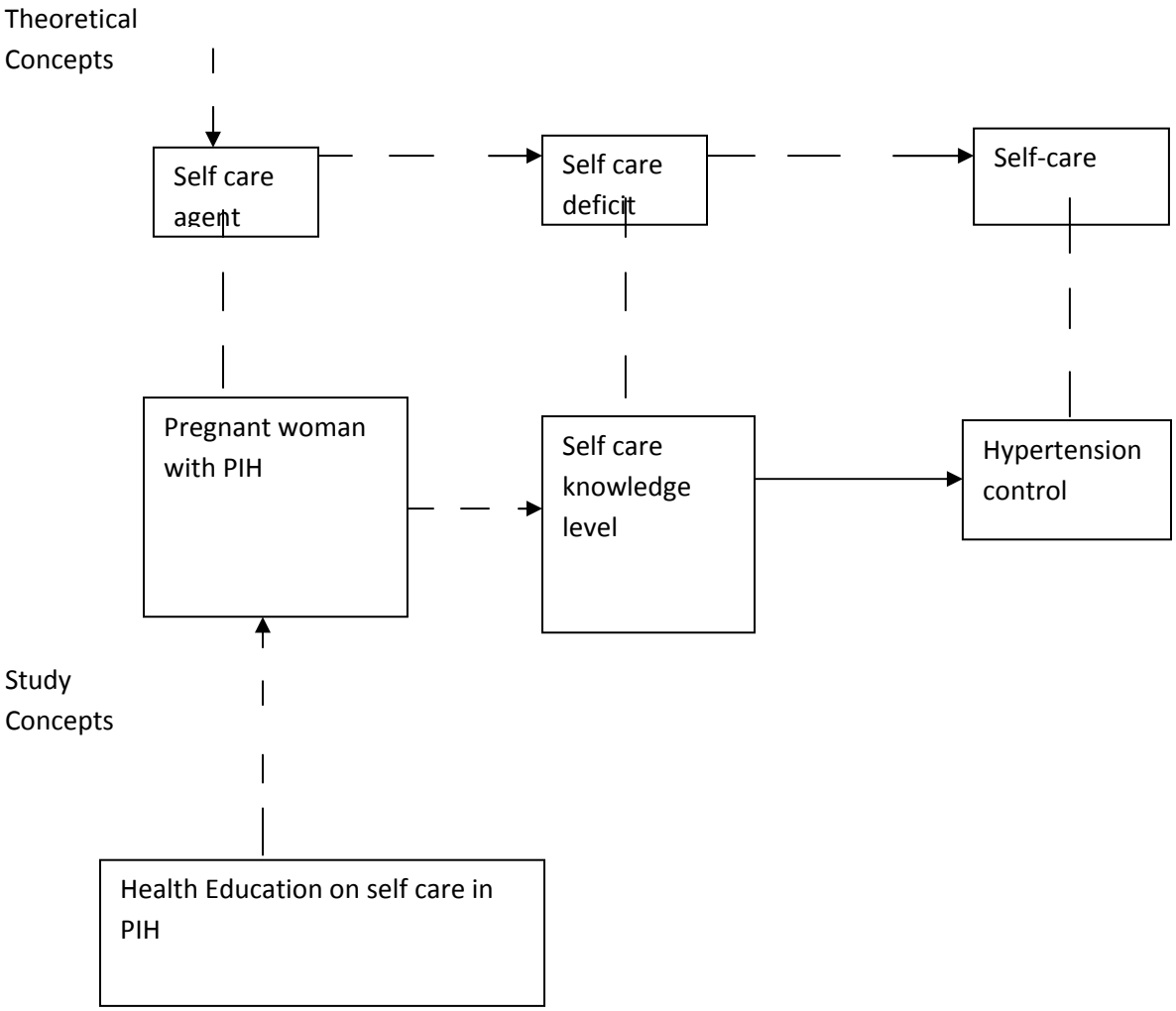


Figure 1: Theoretical Framework adapted from Orem (2001)

Conceptual Definitions of Terms

Self-care

Are activities that an individual initiates on their own behalf in maintaining life, health and well being (Orem, 2001). Self care then translates to health and is reflected through the control of hypertension.

Self-care Agent

The person taking action when they are in a state of health and well being rather than when they are in a state of ill health and sick. The pregnant woman with PIH is the self care agent in this study

Self-care Agency

Self-care agency is the capacity or ability of the person to accomplish self-care demands (Orem, 2001). In the study, self care agency means the pregnant woman's ability to perform such actions as adherence to prescribed diet and hypertensive medication ability to manage symptoms and following recommended rest and activities/exercises. However, this kind of self care agency is derived from PIH self care knowledge.

Self Care Deficit

Orem's self –care Deficit Theory, published first in 1971, has been widely accepted by the nursing community. It includes three related theories of self –care, self –care deficit and nursing systems. Self-care theory postulates that self-care and care of dependents are learned behaviours that individuals initiate and perform on their own behalf to maintain life, health and well-being. The individual's ability to perform self-

care is called self-care agency. Adults care for themselves, whereas infants, the aged the ill and the disabled require assistance with self –care activities. There are three kinds of self-care requisites:

1. Universal requisites, common to all people include the maintenance of air, water, food, elimination, activity and rest solitude and social interaction; prevention of harzards to life and well-being; and the promotion of human functioning.
2. Developmental requisites are those associated with conditions that promote known developmental processes throughout the life cycle.
3. Health deviation requisites relates to defects and deviations from normal structure and integrity that impair an individual's ability to perform self-care.

Self-care deficit theory asserts that people benefit from nursing because they have health-related limitations in providing self-care. Limitations may result from illness, injury, or from the effects of medical tests or treatments. Two variables affects these deficits: self-care agency (ability) and therapeutic self-care demands (the measures of care required to meet existing requisites). Self- care deficit results when self-care agency is not adequate to meet the known self-care demand.

Nursing system theory postulates that nursing systems form when nurses prescribe, design, and provide nursing that regulates the individual's self-care capabilities and meets therapeutic self-care requirements. Three types of nursing systems are identified:

1. Wholly compensatory systems are required for individuals unable to control and monitor their environment and process information.
2. Partially compensatory systems are designed for individuals who are unable to perform some (but not all) self-care activities.
3. Supportive –educative (developmental) systems are designed for persons who need to learn to perform self-care measures and need assistance to do so.

PIH Self-care Knowledge

In this study PIH self-care knowledge refers to knowledge of a range of activities that pregnant women who develop hypertension perform to promote well being or meet basic health needs such as adhering to prescribed diet and medication, exercising, symptoms management and rest.

Hypertension Control

Control of blood pressure refers to the ability of the patient's body to maintain a blood pressure level below 140/90mmHg.

Supportive Educative Nursing System

This is a type of patient education in which the nurse provides education and support for the patient so that the patient will be able to successfully meet his self-care requirements (Orem, 1991).

Purpose of the Study

The purpose of the study was to describe and examine the relationship between PIH self-care knowledge and blood pressure control.

Research Objectives

The study is aimed to fulfill the following objectives;

1. To determine the level of PIH self-care knowledge among pregnant women with PIH in Bindura district.
2. To identify the extent of hypertension control among pregnant women with PIH in Bindura District.
3. To examine the relationship between PIH self-care knowledge and hypertension control among pregnant women with PIH in Bindura District.

Research Questions

This study answered the following questions;

1. What is the level of PIH self-care knowledge among pregnant women with PIH in Bindura District?
2. What is the extent of hypertension control among pregnant women with PIH in Bindura District?
3. What is the relationship between PIH self care knowledge and hypertension control among pregnant women with PIH in Bindura District?

Significance to Nursing

Pregnancy induced hypertension has claimed many lives. The findings from this study would help formulate health education strategies on pregnancy induced hypertension in order to reduce the incidence of maternal mortality and morbidity. The strategies would also help midwives to reduce mortality and morbidity. Maternal mortality is now at 750/100000 in Zimbabwe (Zimbabwe Maternal Mortality Report, 2009) and PIH is one of the causes of these deaths.

The findings may be used in the province to create awareness among health workers on the dangers posed by pregnant induced hypertension. Pregnant mothers themselves would benefit from the study as they would use self-care knowledge to look after themselves in mild and moderate cases at home and only severe cases would need to be admitted in hospital. Health workers in general and midwives in particular would use this knowledge to educate pregnant women and their significant others on pregnancy-induced hypertension so that self-care practices are enhanced. Pregnant mothers with knowledge deficit would be assisted to gain knowledge and skills on pregnancy-induced hypertension and hypertension control so as to improve their quality of life. The findings may also be used in training schools to train students and their teachers during teaching learning sessions. The students may use the findings in practice area to nurse pregnant women with pregnancy induced hypertension. Other researchers may use this study to further their studies. The knowledge that comes from this study may be used to enhance the body of knowledge for nursing profession, in nursing education, in training schools, nursing practice and MCH area.

CHAPTER 2

LITERATURE REVIEW

Introduction

Literature review is a process that involves reviewing relevant literature to gain a broad background or understanding of the information that is available and related to a problem under study. Polit and Beck (2007) stated that literature review focuses on areas relevant to the research topic. This results in development of a comprehensive picture on what is known on the topic. Similarly, in this study a review of literature was done on hypertension control among pregnant mothers with PIH and PIH self care knowledge. A review of available literature on the relationship between PIH self care knowledge and hypertension control was also included. The chapter will conclude with a discussion of studies that utilized Orem's self care model as a conceptual framework.

Magnitude of PIH

It is estimated that pregnancy induced hypertension complicates approximately most pregnancies (Tita, 2006). Although the prevalence of PIH is increased by 20% to 40% in women with chronic renal disease, essential hypertension and diabetes mellitus (MacIntosh, 2006), in Bindura District, most women with PIH have no underlying predisposing cause. However, for any form of PIH, hypertension needs to be controlled if the millennium development goals are to be achieved. Zimbabwe supports and is working towards achievement of the eight millennium

development goals. Goal number 4 aims to reduce perinatal mortality and goal five (5) focuses on the reduction of maternal mortality.

The Zimbabwean maternal mortality rate is reported to be 750 / 100 000 (Zimbabwe Maternal Mortality Report, 2009). PIH complications partly contribute to this high mortality.

It therefore becomes crucial to control blood pressure in all women with PIH. It is also essential to recognize the mild and severe forms of PIH in order to act more promptly to prevent complications. According to Hareyan (2008), mild PIH is characterized by either blood pressure levels of 140/90mmHg or higher after 20 weeks gestation, or a blood pressure rise greater than 30/15 from early or pre-pregnancy baseline or a rise of mean arterial pressure of more than 105mmHg. Such mild forms of PIH require close monitoring. Severe forms of PIH are reflected through blood pressure levels of 160/100 taken on 2 separate occasions, 6 hours apart after bed rest (Hareyan, 2008).

Hypertension Control Among Pregnant Mothers with PIH

Most authorities quote that well controlled hypertensive conditions, including PIH should have blood pressure levels below 140/90mmHg (Hareyan, 2008; Sabour, 2007). According to Sabour (2007), it is now known that slight raises in blood pressure during pregnancy can have lasting effect. Women with PIH therefore need to be closely followed up, and should have their blood pressure controlled in order to prevent severe complications of premature delivery and intrauterine death.

Despite the above assertion, it appears control of blood pressure among pregnant mothers with PIH appears to be difficult. Pregnant women with PIH attending Bindura District Hospital Antenatal Clinic persistently display unacceptably high blood pressure levels despite medication and other non-pharmacological efforts to lower the blood pressure. A day to day random check on blood pressure levels in women with PIH showed that in 2009 at least 10 women per day presented to Bindura Hospital antenatal clinic with blood pressure levels above 150/90 mmHg (Bindura District Hospital Medical Records, 2009). Informal interactions with health professionals nationwide also indicate that PIH is a growing problem in Zimbabwe, and the blood pressure levels appear to be difficult to control.

Control of hypertension in developing countries such as Zimbabwe is very difficult as drugs are costly and sometimes not available. In addition, even if drugs are available, some drugs have unpleasant side effects and this causes problems on adherence and ultimately difficulties in controlling blood pressure in PIH. In some cases absence of symptoms is misleading as clients become less suspicious of the threats of PIH (Haynes, 2007).

Local literature to confirm the magnitude of uncontrolled blood pressure among PIH patients appears to be scarce. Regional trends also show limited literature on blood pressure control among women with PIH. However, most local and regional PIH patients appear to use religious beliefs to protect themselves from harm, to control disease and cope with hypertension. Some use traditional herbs to control hypertension (Edwards & Craig, 1997). As a result of adoption of such ineffective

methods blood pressure levels are difficult to control in most PIH patients. Available regional literature demonstrates that even in countries such as the Barbados where Government offers free hypertensive drugs to all private and public patients, hypertension control is evident in only 1 in 4 patients at any given time (Frazer, 2000). Similar trends were observed in Tanzania where Seedat (2005) reported that only 1% of PIH patients in Tanzania manage to control their blood pressure.

Uncontrolled hypertension in PIH appears to be a problem on the global arena as well. Several studies from a global perspective have managed to demonstrate difficulties in controlling PIH related hypertension. A study carried out at Turku University Central Hospital in Finland for example bears testimony. In this study, a small sample of 14 patients with PIH recorded persistently high blood pressure levels on follow up visits. Although the women's systolic blood pressures ranged from 130 to 190 mmHg, the average systolic blood pressure was 153mmHg. Diastolic blood pressures were equally high and ranged from 86 to 111mmHg with an average diastolic pressure of 105mmHg (Onusko, 2003; Anderson & Douglas, 2003).

An earlier study at the same study site (Turku University Central Hospital) had concluded that natural intrinsic control mechanisms of blood pressure are disturbed in PIH (Ekholm, Tahvanainen & Metsala, 2005). The investigators compared 14 women with PIH and 16 women with uncomplicated pregnancies of similar duration. Non invasive arterial blood pressure monitoring was done throughout the study. At the end of the study, blood pressure variability was calculated. Systolic blood pressure variabilities were significantly increased (p =

0.03) in patients with PIH. Therefore extrinsic methods to control the blood pressure in PIH are called for.

Slightly better but relatively low levels of PIH control were reported in the United States and Canada. For the United States, 24% of PIH patients were reported to manage to control their blood pressure (Butler et al, 1999). In Canada 79% failed to control their blood pressure citing problems of side effect, forget fullness and alcohol consumption In Japan, only 20% of PIH patients had proper control of their hypertensive disorder (Woo, 1998).

Despite knowledge of the grave complications of uncontrolled hypertension, there appears to be limited focus on the degree of blood pressure control. Uncontrolled hypertension in PIH is well known for causing poor maternal and neonatal outcomes. On the maternal side, Robert & Bowling (2001) for example stated that body organs may be damaged because of repeated attacks of high blood pressure leading to renal failure, cardiac failure and cerebral bleeds. Of late, PIH has also been reported to complicate into the life threatening HELLP syndrome (Haemolytic anaemia, Elevated Liver enzymes and Low Platelet count) and disseminated intravascular coagulopathy (DIC) (Rosato, 2006 & MacIntosh, 2006). Most neonatal complications appear to be as a result of poor placental perfusion.

Admission with pregnancy induced hypertension does not only create physiological burden to the patient concerned but it also causes psychological, sociological and financial problems to these clients, and their families. It is in the context that the present study partly focused on establishing the level of hypertension

control among pregnant women with PIH in Bindura District. It was hoped that a broader picture on the extent of hypertension control would be depicted using a larger sample size.

PIH Self Care Knowledge

PIH Self-care knowledge is the awareness needed to effect self care for women diagnosed with PIH. Such awareness is needed to regulate factors that affect the individual's own self-functioning. Self-care knowledge on PIH is needed in order to change behaviour and practices which need to be changed, modified, abandoned, introduced, maintained or reinforced in order to control blood pressure. Informal interactions with mothers diagnosed with PIH in Bindura district demonstrated that such kind of knowledge appears to be deficient.

Most women with PIH in Bindura district for example appear to lack appreciation of the need for medication, constant follow up visits and diet in the control of PIH. As a result, self care activities such as frequent visits to ante natal clinics are not adhered to. Instead, myths and misconceptions prevail. As noted by Grant and Hezekia (1997), such misconceptions lead to lack of general awareness and clients present to health centres when it is too late. Magaisa (2004) expressed similar sentiments and noted that 60% of mothers in Zimbabwe possess knowledge on prevention of cancer but lacked knowledge on hypertension control in PIH.

Lack of PIH self care knowledge appears to be marked in the Sub-Saharan Region as well. PIH clients in Sub-Saharan Africa were particularly reported to take minimum appropriate actions to reduce PIH as they particularly blame evil spirits and

witchcraft (Lawrence, 1999). In addition, it has been noted that women with PIH lack awareness on the role of weight reduction. Ramsay (1994) in his study with 134 pregnant women revealed that weight loss reduced blood pressure by 15%. It is against such background that PIH women need to be equipped with adequate knowledge skills to subsequently enhance self care. Contrary to the recommendations on weight reduction, in Zimbabwe, being obese is a sign of being well looked after or living a better and comfortable life (Katsinde, 2000). Hence efforts to increase PIH self care knowledge in terms of weight reduction for example may not be socially acceptable.

More regional literature on low PIH self care knowledge was reported by Kashanija (2008) and Hoff (2005). Kashanija (2008) studied patterns of self care knowledge levels among 64 mothers with PIH in Tanzania. The results indicated that 54% mothers had knowledge on pregnancy-induced hypertension and not PIH self care. Hoff (2005) expressed similar sentiments and reported that in Uganda, 64% of mothers with PIH were highly knowledgeable on PIH and not PIH self care.

PIH self care knowledge levels was reported to be much improved among Ugandan mothers with PIH. In a Ugandan study to establish how much women with PIH knew about how to control blood pressure, 36% of the mothers lacked the necessary knowledge. The main cited reason for this lack of knowledge was lack of interaction with health workers largely because they preferred delivering at home (Graeff & Goma, 2000). According to Alderman (2001) strengthening of mother's knowledge empowers them to receive support through education and health

promotion so as to ensure successful pregnancy outcomes. Such potential benefits of equipping pregnant mothers with self care knowledge were seen in Major (2003)'s study. A total of 24% of mothers were highly knowledgeable about pregnancy-induced hypertension and also appreciated the role of medication and diet following health education sessions by midwives. Prior to the study, the women scored dismally on PIH self care knowledge.

India also reported poor PIH self care knowledge (Kumari, Geetha & Kadeeja (2003). In their study to establish the knowledge and practice of 70 women with PIH, 95% were found to be unaware of their PIH condition as well as its management including self care management of PIH. These results demonstrate that limited PIH self care knowledge is not a problem unique to Zimbabwe or Africa alone. However, circumstances leading to low knowledge levels may differ from continent to continent. Lane (2003) and Savage-King (2004) concur that mothers' PIH self care knowledge in developing countries is inadequate largely because traditional healers and faith healers are consulted first before health personnel. Therefore mothers' PIH self care knowledge needs to be improved.

On a global note, although WHO (2007) stated improved PIH self care knowledge levels, inconsistencies with adherence to PIH self care activities are common even in industrialized countries. Wamani et al., (2008) concurred and reported that 90% of mothers appear to be highly informed on PIH self care methods to control hypertension. However, Mlangenis (2005) reported that the majority of these mothers do not adhere to treatment when they feel better. Therefore there is

need to generally strengthen the nature of PIH self care knowledge to enhance practice. Wara (2007) expressed similar sentiments and stated that a mother with knowledge on self-care is likely to utilize that knowledge to control hypertension and protect herself and her baby. The present study measured the amount of PIH self care knowledge among pregnant women with PIH in Bindura district.

Relationship Between PIH Self Care Knowledge and Hypertension Control

Though no perfect remedy is available at present for hypertensive disorders of pregnancy, it is possible to minimize hazards on the mother and developing fetus by early detection and prompt action. Early detection and prompt action in turn is possible when the mother has been empowered with PIH self care knowledge skills. According to Kumari, Geetha and Kadeeja (2003), most of the complications related to PIH are occurring due to maternal negligence or unawareness on the management of PIH. In Zimbabwe, available literature failed to reveal studies that focused on the relationship between PIH self care knowledge and Hypertension control. The present study therefore, aimed to fill this gap by examining PIH self care knowledge and control of hypertension among women in Bindura district.

Available literature from Botswana showed no association between PIH self care knowledge and blood pressure control (Dhlamini, 2008). There was no difference as people who have received the information on PIH self care would have contrary practices such as eating wrong diet, adding salt to food before tasting it, refusing to take drugs in fear of side effects, skipping taking drugs and missing ante-

natal visits. In addition, some mothers with PIH preferred following culturally accepted behaviors such as having a faith healer conducting their deliveries (Tlou & Shapiro, 2007). Ultimately such cultural inclinations posed adherence problems as well as poorly controlled blood pressure.

The association between PIH self care knowledge and hypertension control has been widely documented in India. In a randomised control trial conducted between October 2000 and June 2001 there was a positive relationship between knowledge level and control of hypertension in 115 PIH patients (Bhandari, 2008). A total of 74% mothers who had received health education sessions adhered to prescribed treatment regimen. In addition, these mothers proved that they were taking self-care actions evidenced by well controlled blood pressure levels.

Kumari, Geetha & Kadeeja (2003) conducted a randomized control trial on self care knowledge and activities of PIH patients and maternal outcomes in India. A total of 70 purposively selected women were randomly assigned, 35 into the experimental and another 35 into the control groups. At the beginning of the study, when the knowledge levels were measured, there were no significant differences in PIH self care knowledge in the control and experimental group. However it was striking that 95% were unaware of PIH and its control. After heath education strategies for the experimental group, the blood pressure of 64% of the participants in the experimental group was stabilized. More impressive was the result that 21% of them had lower blood pressures compared to baseline measurements. On the contrary, 49% of the participants in the control group (the group that did not receive PIH self

care education) had fluctuating blood pressure. In addition, 30% of them had very high blood pressure. It was then concluded that PIH self care knowledge offers a potential for improving the women's health status by preventing severe forms of PIH given the deteriorating health costs. Self care was therefore deemed to be the most appropriate approach to enhance both maternal and fetal well being as well as foster successful outcomes of pregnancy.

Mhlangeni (2000) also demonstrated a positive correlation between PIH self-care knowledge and hypertension control. The investigator's study on 90 participants revealed a positive relationship between self-care knowledge on use of diet with low salt, exercise on one hand and blood pressure control on the other. Similar sentiments were echoed by Winkler and Bodeinstein (2008) and Smart (2008). Smart (2008) further emphasized on the need to eradicate myths and misconceptions. He revealed in his study that peer and societal pressure against pregnancy induced hypertension and hypertension control will remain a problem as long as women believe that pregnancy-induced hypertension is caused by evil spirits or bad humour. These women will consult the traditional or spiritual healers before they come to hospital. They may not even stick to prescribed regiment as they will need to carry out instructions from other healers.

On the global arena, the effect of PIH self care knowledge and blood pressure control has been demonstrated by Tsigas (2006). Tsigas's experience with actual cases demonstrated that prenatal patient education and ongoing preeclampsia support for those diagnosed with pre-eclampsia reduces patient anxiety, improves patient

adherence to recommended self care activities and particularly improves health outcomes such as control of blood pressure. Therefore, routine PIH self care education programmes must be clearly intended on educating and reinforcing a woman's responsibility for her prenatal well being.

Theoretical Framework

This study aims to describe the relationship between self-care knowledge of pregnancy induced hypertension and hypertension control. Orem's self-care model was adopted to guide the study. The investigator believes that people with pregnancy-induced hypertension have nursing care needs that could be addressed successfully through the use of Orem's theoretical framework. This framework has been used to guide self-care research on populations with specific diseases (Hatweg, 1993). Mahaka (2006) utilized Orem's theoretical model to show that self-care plays a central role in controlling hypertension and preventing complications. The model explained that self-care knowledge increases hypertension control among pregnant hypertensive women (Mahaka, 2006).

Orem's model was also used to examine self-care actions that older adults use to manage colds and influenza episodes (Conn, 1991). Self-care actions were defined as medication administration, fluid and food intake, elimination activities, rest and social interactions. Medication administration was the most common factor contributing 79% cases of colds and 95% cases of influenza.

In most studies that used self care model on breast feeding, and cancer management, self care was acknowledged as a significant factor that reduces the

incidence of complications, hospitalization as well as ensuring quality outcomes (Bruggink, 2007). The results were supported by Chung (2007), who did a study with 100 women to find out if self-care helps to reduce hospital admissions. The findings were that 64% did not need re - admission.

Maponga (2006) used Orem's self-care model to assess the relationship between eating and drinking patterns and frequency of oral thrush among subjects living with HIV/AIDS. Findings were that as eating and drinking increased oral thrush decreased showing that good self-care practice would help decrease symptoms of oral thrush.

Makubella (2002) used Orem's self-care model to design the self-care model of best practices in home care hygiene and dealing with minor ailments. Environmental practices were found to be good predictors of improved health and well being.

From all the above cited studies, it can be concluded that Orem self-care model is an effective framework to guide nursing research. The model offers a tool for assessment and provision of comprehensive information pertaining to self-care of clients. It therefore became applicable to use the model to guide the present study. The variables for the present study which sought to examine the relationship between pregnant women's PIH self-care knowledge and hypertension control make it more applicable to use the self care model.

Summary

Control of blood pressure among PIH patients appears to be difficult to achieve. Though no perfect remedy is presently available to control hypertension in PIH, it is possible to minimize complications of uncontrolled blood pressure levels through equipping pregnant women with PIH self care knowledge (Kumari, Geetha & Kadeeja, 2003). Most of the complications related to PIH are occurring due to maternal negligence or unawareness on self management of PIH. Literature has demonstrated that worldwide, the majority of women with PIH have inadequate PIH self care knowledge. Limited PIH self care knowledge on issues such as knowledge on recommended diet, prescribed medication, rest and poor symptoms management is leading to poor self care practices and ultimately poor hypertension control (Cline et al, 2000; Schiffer et al, 2002; Bruggink et al, 2008; Dickson, 2008).The preventable complications of PIH are proving to be costly (Owusu, 2007). In addition, it is possible that if PIH self care knowledge is improved, hypertension control will be achieved, a lot of complications reduced and ultimately a positive contribution to the 4^{th} and 5^{th} millennium development goals will be a reality.

CHAPTER 3

RESEARCH METHODS

Introduction

This chapter addresses the research study methodology. Important areas of focus will include the research design, sampling plan, definitions of variables, descriptions of the research instruments, data collection plan and the plan for data analysis.

Research Design

This study used a quantitative approach and adopted the descriptive correlational study design. The descriptive correlational design describes and examines the inter-relationships among variables in their natural settings without manipulating the variables (Polit & Hungler, 1995). The quantitative approach was used since the study ultimately aimed at quantifying the amount of PIH self care knowledge as well as the extent of hypertension control among PIH patients. An examination of the relationship between PIH self care knowledge and hypertension control was then possible.

Study Setting

The study was conducted at the Family Child Health Departments (FCH), an outpatients' department at Bindura Provincial Hospital. Bindura Provincial Hospital is a referral health centre for Mashonaland West Province. Therefore, this study setting has a much has a bigger catchment area. Services such as antenatal assessments and examinations, review of medications and teaching of clients on

healthy life styles behavior for blood pressure control are offered at the study site. Monthly follow up visits for clients with PIH for blood pressure monitoring are the other services offered. The FCH department opens every weekday from 0800 to 1600 hours. The study site was therefore found to serve as a relevant site offering an easily available accessible population.

Sampling Plan

A sampling plan is a design used to obtain a sample for study according to Polit & Hungler (1995). The sampling plan includes specifications of the study population, sample, sample size and the sampling method to increase representativeness, decrease systematic bias and sampling error (Burns & Grove, 1997).

The Study Population

The study population for this study was all pregnant women with PIH. The study findings would then be generalized to this target population. Since it is not possible to study the whole population, the investigator focused more on the accessible population. The accessible population therefore became all women with PIH who were visiting the study sites during the data collection days. It is from the accessible population that the investigator selected the study sample.

The Study Sample

A sample is a portion of the population that represents the entire population. The advantage of using a sample is that it is more practical and less costly (Polit & Hunger 1995). However the sample needs to be large enough to enhance external

validity. Careful descriptions of the sampling criteria as well as sample size calculations were therefore necessary.

Sampling Criteria

Inclusion Criteria

The inclusion criteria specify the necessary characteristics of subjects to be included in the study sample. In this study, criteria for being considered as a study participant included that the prospective participants had to be pregnant, have PIH and be formally registered at the respective study sites. Women with PIH aged between 18 and 49 years with a minimum parity of 2 were therefore eligible for selection into the study. The women also needed to have attended antenatal clinic at the respective study sites at least twice. It was envisaged that such clients would have been exposed to the requisite PIH self care education. It then became more relevant to measure PIH self care knowledge in such clients.

Exclusion Criteria

The exclusion criteria are suggestive of undesirable characteristics in the study which may introduce bias to the study. Pregnant clients who did not have PIH were excluded from the study. Similarly, clients with PIH but with a parity of 0 or 1 were also excluded. Clients with chronic conditions for example cardiac failure, renal failure, diabetes mellitus or chronic hypertension were not included in the sample because these complications would represent confounding variables. In addition very ill patients were excluded from the study since it would become difficult for them to comprehend and answer questions for themselves. Mentally retarded patients were also excluded as it would be difficult to obtain informed consent from them. Those clients aged below 18 years of age were excluded due to envisaged problems of

getting legally valid informed consent from them. Those above 49 years were excluded as they would alter the homogeneity of the sample. Finally, all clients not registered at the two study sites for antenatal care were not eligible for selection into the study.

Sample Size

Sample size is the number of respondents required in a sample. The sample size in this study was determined by using power, effect size and significance level. According to Polit and Hungler (1995), power is the ability of the research design to detect the relationship among variables. Power helps to avoid type Π error where the null hypothesis is accepted when it is false. Power of .80 is the minimum level which guides sample selection.

The significance level of .05 was used and is the probability that the research findings are reliable. The significance level influences the evidence supporting rejection of the null hypothesis. At a significance level of 0.05, it therefore meant that the results would be 95% correct.

The effect size indicates the magnitude of the relationship among research variables (Polit & Hungler, 1995). The effect size is expressed as small (0.2), medium (0.5) or large (0.8) . If the effect size is large the relationship will be easy to detect and a small sample will be needed. On the other hand if it is small, detecting the relationship will be difficult unless if a larger sample size is used. Large samples are difficult to obtain in that they require long data collection periods and thus are costly. In this study an effect size of .5 was used.

Based on a power of 0.8, significance level of 0.05 and an effect size of 0.5, Lipsey statistical selection table (Lipsey & Cohen, 1990) was used to estimate the sample size. The statistical table indicated a sample of 65. An additional 13 participants were added to accommodate potential attrition. The final study sample was therefore 78.

Sampling Method

In this study, a simple random sampling technique was used to select the study participants from the accessible population. Random sampling is a probability sampling technique that gives each element of the population an equal chance of being included in the study (Polit & Hungler 1999). Simple random sampling was chosen because it is a cheap and easy sampling method to use but effectively minimizes sampling error.

Sampling Procedure

Sampling was guided by the designed sampling criteria and a sampling frame. The antenatal clinic register was used and all those participants reporting to the clinic were identified on each data collection day. A sampling frame (a list of those who met the inclusion criteria) was made using the attendance register. The prospective participants were numbered sequentially on the sampling frame and corresponding numbers made and placed in a tin. The numbers were randomly mixed in the tin and a single number picked. The picked number represented the corresponding participant to be selected from the sampling frame.

After data collection on the participant, the number was replaced into the tin. The numbers were mixed once more and one more number randomly picked to represent the next study participant. The procedure was repeated until the desired sample size of 78 was achieved. In the event of a number being randomly picked for the second time, the number was placed back into the tin, the numbers mixed again and the random selection repeated. The sample size was therefore achieved through simple random sampling method with replacement.

Study Variables

Variables are characteristics or attributes of a person or object that varies within the population under study (Polit & Hungler, 1995). Variables are therefore those attributes that are measured or manipulated in a study.

This study focused on three study variables namely; PIH self care knowledge, hypertension control and demographic variables. PIH self care knowledge was the independent variable while hypertension control was the dependent variable. All these three variables need to be defined to enhance understanding. Conceptual and operational definitions of each variable are included below.

Conceptual and Operational Definitions of Variables

A conceptual definition denotes the concise, literal or exact meaning of the variable or concept being studied. The conceptual definition reflects the meaning and context within which the variable should be viewed and interpreted.

On the other hand, an operational definition reflects how a variable will be operationalized or measured. Polit and Hungler (1991) expressed similar sentiments and stated that an operational definition of a concept is a specification of the procedures and tools required to make the needed measurements. Accordingly, the three variables under study will now be conceptually and operationally defined.

Hypertension Control

Conceptually hypertension control refers to the body's ability to regulate and maintain blood pressure levels within acceptable limits. However, the body's ability to control the blood pressure level relies heavily on an individual's self care

knowledge of what to do to maintain the blood pressure within normal limits. For the purposes of this study any blood pressure reading of 140/90mmHg and below meant a well controlled blood pressure.

Operationally hypertension control was measured by means of systolic and diastolic blood pressure measurements using the auscultation method by means of a sphygmomanometer and a stethoscope. Each participant's blood pressure was measured in a sitting position following 5 minutes of rest. Appendix C, (The Hypertension Control Instrument) guided the blood pressure data gathered from each study participant.

PIH Self Care Knowledge

In this study, PIH self care knowledge conceptually referred to knowledge of the recommended self management activities for the control of PIH. Such activities include adherence to prescribed diet, reduction in alcohol and tobacco consumption, rest and exercise, weight reduction and stress management. The study also focused on such PIH self care practices as adherence to prescribed medications, knowledge on early recognition of clinical features of PIH as well as adherence to recommended antenatal practices.

Operationally, PIH self care practices were measured using Appendix D. The research instrument was entitled PIH Self Care Knowledge Questionnaire (PIHSCKQ).

Demographic Variables

Conceptually demographic variables meant the personal, characteristics such as age, sex, weight, race, marital status, education, religion, occupation and income. The characteristics provided background information about the sample. Operationally, demographic data were collected using the Demographic Data Questionnaire (DDQ) illustrated on Appendix B.

Research Instruments

An instrument is a device or technique that an investigator uses to collect data (Polit & Hungler 1995). In this study, three structured interview schedules were used as research instruments. Each instrument contained items addressing each of the research variables for this study.

Demographic Data Questionnaire (DDQ)

The instrument on demographic data yielded participants' personal data. The instrument included demographic items such as age, weight, marital status, religion, educational level, occupation, monthly income and place of residence. Age and weight were included as relevant demographic characteristics because research has shown that blood pressure increases as these variables increase. The DDQ included 11 items numbered from question 1 to question 11. All these questions focused on the respondents' demographic characteristics. For item 10, which sought to obtain data on the respondent's weight, a weighing scale was used as a measuring tool.

Hypertension Control Instrument

Appendix C was used to guide data collection on hypertension control. The instrument had one item (Item 12) onto which the measured systolic and diastolic blood pressures were recorded. Blood pressure was measured using a mercury sphygmomanometer with a correct size cuff. The auscultatory method (with the aid of a stethoscope) was used to measure the blood pressure. The cut-off point for acceptable blood pressure control was 140 mmHg for systolic pressure and 90 for diastolic pressure.

PIH Self Care Knowledge Questionnaire (PIHSCKQ)

The Pregnancy Induced Hypertension Questionaire (PIHSCKQ) had 14 items (question 13 to 26). Items 13 to 15 elicited data necessary for descriptive purposes only and not for scoring purposes. Scoring for PIH self care knowledge was done on responses to questions 16 to 26. For questions 16 and 17, one mark was awarded for every answer that indicated "Yes" for a correct response and "o" for an incorrect response. Scoring for responses to question 18 was based on a likert scale ranging from 0 to 3. Seeking medical care was the response awarded a highest score of "3" for each of the responses. For Question 19, each "Yes" was awarded a score of 1. A mark was awarded to an answer that indicated a "correct" response to questions 20 to 22.

Question 23 was scored based on a likert scale ranging from 1 to 3. A participant who responded by saying "always" to the two items attained a score of 3 for each of the points. For item 24, each response carried a score of 1 while for items 25 and 26, each response indicating "always" carried a score of 1. Total PIH self care

knowledge scores were based on a minimum score of 0 and a maximum score of 48. The mean knowledge score was therefore 24. All respondents who scored less than 24 out of 48 therefore demonstrated low PIH self care knowledge.

Validity of the Instruments

Validity concerns soundness of the study's evidence, in which findings are convincing and well grounded. Validity is an important criterion for assessing the methods of measuring variables. The concept of validity seeks evidence to support that the methods are really measuring the abstract concepts that they purport to measure. Validity concerns the quality of the researchers' evidence and enhances the trustworthiness of the study data (Polit & Beck, 2003). Validity encompasses credibility transferability conformability and dependability. Results should be free from the researcher's biases.

To ensure content validity of the research instruments, questions were formulated based on variables demonstrated by literature to be valid measures of important demographics, blood pressure control as well as PIH self care knowledge. Literature for example showed that systolic blood pressure below 140mmHg and diastolic pressure below 90mmHg demonstrates blood pressure control in PIH.

The instrument was designed and organized into 3 separate instruments, each measuring a corresponding study variable. This improved face validity of the instruments. Each item was carefully analyzed with assistance from the research supervisor to ensure validity. Finally, experienced nurses at the antenatal clinics also

reviewed the items in the instruments to ensure that they were valid measurements of the intended attributes.

Reliability

Reliability is the accuracy and consistency of information obtained in a study. A reliable instrument maximizes true scores and minimizes erratic scores. The research instruments were translated into the vernacular language (Shona) by experts at the Lingustics Department of the University of Zimbabwe. This translation reduced ambiguities and enhanced reliability of the data collected.

The investigator pre-tested the instrument on ten (10) patients with PIH at Concession Hospital. The pretest results were used to refine ambiguous questions on the instrument to aid reliability. In addition, the investigator used the same mercury sphygmomanometer, and stethoscope for measuring blood pressure ,and same weighing scale to minimize measurement error. The sphygmomanometer and weighing scale were calibrated by the Bindura hospital instrument technician to enhance reliability of the blood pressure measurements.

Pilot Study

A pilot study was conducted at Concession Hospital antenatal clinic in Mashonaland Central. Concession Hospital serves the same population as Bindura Provincial Hospital. Concession Hospital is a referral hospital for several Rural Health Centres as well as for Howard Hospital and Mazowe Citrus clinics. The pilot sample of ten (10) participants had the same inclusion characteristics as the proposed sample. The pilot study assisted in ascertaining feasibility issues in terms of the

sampling method, interviewing process as well as the validity and reliability of the instruments.

The purpose of the study and issues of confidentiality were explained to the clients. Data collected from this pilot study was used by the investigator to make corrections, revisions and refinements as necessary. The pilot study therefore reduced uncertainties thereby enhancing the study's internal and external validity.

Data Collection Plan

The data collection plan encompasses ethical considerations as well as the data collection procedures. These two attributes of the data collection plan are described below.

Ethical Considerations

In order to observe and protect human rights the investigator worked with the research supervisor to ensure that human rights were not being violated. Copies of the research proposal were submitted to the hospital authorities of Concession hospital as well as Bindura Provincial hospital. Initial permission to conduct the study was sought from the two hospitals. The investigator proceeded to obtain permission to proceed with the study from the Medical Research Council of Zimbabwe (MRCZ). The Ethics Review Board at MRCZ granted a written permission for the study after being satisfied that the proposal was ethically sound.

The investigator designed a written informed consent form for use on each individual participant. The informed consent form assured subjects of their rights to self determination by informing them about the proposed study and allowing them to

voluntarily choose to participate (see Appendix A for a sample of the informed consent form). Privacy was maintained by interviewing the subjects in a private room free from disturbances. The raw data was not shared with any other person other than the investigator. Completed schedules were kept under a locked filing cabinet by the investigator. Anonymity and confidentiality was assured by using code numbers on the forms instead of actual names of participants.

Data Collection Procedure

Following final approval by the MRCZ, the investigator visited the study sites, and introduced herself to the nursing administration as well as to nurses working in the antenatal clinics. Full explanations on the research study were done to the nursing staff to create rapport and gain their co-operation during data collection. Quiet rooms were identified for the interview process.

Data were collected for 3 weeks between 21st September and 2 October 2009. The investigator collected data on every week day between 0800 hours and 1600 hours. On each data collection day, the investigator made a sampling frame from the register guided by the sampling criteria. Participants were then randomly selected from the sampling frame while they were still waiting in the waiting area for their turn to be reviewed. The investigator liaised with the consulting midwives to ensure that the participants maintained their positions in the queue.

Every randomly selected participant was greeted and taken individually to a private room where they were offered a seat. Introductions were made and the informed consent form was either given to her to read or read to her by the

investigator. Full explanations about the study were given and the participants were given a chance to voluntarily agree or disagree to participate. Those who agreed were asked to show by signing on the informed consent form.

The participant's weight was taken using a weighing scale. The participant was then allowed to settle for five minutes before the blood pressure was measured using a sphygmomanometer and a stethoscope. Blood pressure readings were taken while the patient was seated in the upright position for every participant. The correct size blood pressure cuff was applied on the upper arm of the participant. A mercury sphygmomanometer calibrated by the hospital instrument technician was used on all the participants. The brachial pulse was palpated for. The cuff was inflated till the radial pulse was impalpable. The cuff was inflated further to 30mmHg above the point the radial pulse was palpable. The diaphragm of the stethoscope was placed over the brachial artery on the same arm. The cuff was slowly deflated. The point at which the first Korotkoff sound was heard on auscultation was noted as the systolic blood pressure. The point at which the Korotkoff sound disappeared was noted as the diastolic blood pressure. The blood pressure cuff was then deflated and removed. The blood pressure was recorded onto the appropriate spaces on Appendix C and the client was informed of her blood pressure reading.

The procedure of recording the blood pressure was immediately followed by the face to face interview. Questions in Appendix A were asked first followed by questions in Appendix D. An English or Shona version of the instruments was used as appropriate depending on the participant's desires and the language she was

comfortable with. The whole data collection process, from measuring of blood pressure to completion of the interview took about 20 minutes for each participant. At the end of the interview, each participant was given a chance to ask any questions and appropriate health education was given based on the asked questions. Each participant was thanked for her time and co-operation. The investigator then took the participant back to the waiting area to proceed with activities of her appoint visit. The procedure was repeated until data was collected from 78 participants.

Data Analysis Plan

Data analysis was conducted to reduce, organize and give meaning to data (Burns and Grove 1997). Planning data analysis involves coding and selection of appropriate statistical techniques to analyse data. Coding is the process of transforming data from categories, words or phrases into numerical symbols that can be computerized (Burns & Grove 1997).

The responses on the research instruments were coded using numbers. The investigator then developed a code-book. All data collected was transferred from the questionnaires to the code-book. The investigator then entered data directly from the code book into the computer using a statistical software package called the Statistical Package for the Social Sciences (SPSS, Pc). This software package was used to analyze the descriptive and inferential statistics. Pearson Correlation test was the inferential statistic computed.

Demographic Variables

Demographic variables described the sample under study. Descriptive statistics were used to determine the mean, frequencies and percentages of the sample demographics.

PIH Self Care Knowledge

The first research question was "What is the level of PIH self-care knowledge among pregnant women with PIH in Bindura District?" Descriptive statistics namely frequencies, means and percentages were used to analyze data obtained in response to this question.

Hypertension Control Among PIH Patients

The second question was "What is the extent of hypertension control among pregnant women with PIH in Bindura District?" Descriptive statistics were used to analyze data for this research question.

The Relationship Between PIH Self Care Knowledge and Hypertension Control

The third research question read "What is the relationship between PIH self care knowledge and hypertension control among pregnant women with PIH patients in Bindura District?" Data obtained in response to this question was analyzed and the question answered using inferential statistics. Inferential statistics provide means for drawing conclusions about a population given the data obtained from the sample (Polit & Hungler 1995). The Pearson correlation coefficient (r) statistical test was used to determine whether there is a relationship between PIH self-care knowledge and hypertension control. The type and strength of relationship was determined by correlational analysis. The type of the relationship would be a negative (-), positive

(+) or no relationship at all. The strength of the relationship would be denoted by a figure ranging from -1 to +1.

CHAPTER 4

RESULTS

Introduction

This chapter presents the results of the analyzed study findings. Data were analyzed using descriptive and inferential statistics.

Summary

The purpose of the study was to describe and examine the relationship between self-care knowledge of pregnant women with pregnancy induced hypertension and hypertension control. The questions answered were:

What is the level of PIH self-care knowledge among pregnant women with PIH in Bindura District?

What is the extent of hypertension control among pregnant women with PIH in Bindura District?

What is the relationship between PIH self care knowledge and hypertension control among pregnant women with PIH in Bindura District?

The study was carried out at Bindura Provincial Hospital and Concession Hospital, which are referral hospitals in Mashonaland Central province. Data on Blood pressure control were collected using a mercury sphygmomanometer and a stethoscope. Data on sample demographics and PIH self care knowledge were collected using structured face-to-face interview schedules. Descriptive statistics and

inferential statistics (namely the Pearson correlational coefficient or ("r") were used to analyze the data.

Sample Demographics

Results of the demographic characteristics are displayed on Tables 4.1 to 4.4. According to the results on table 4.1, the ages of the participants ranged from 20 years to 45 years and the mean age was 29.87 years. The majority of respondents, 55 (70.5%) had a parity of 2 and the mean parity was 2.36. The gestational age of the pregnancies ranged from 5 months for 19 (24.4%) to 9 months for 16 (20.5%) participants. Table 1 concludes by demonstrating that 69 (88.4%) respondents resided in the urban areas.

Table 4.2 illustrates results on marital status, ethnicity, level of education, occupation and religion. Seventy – five (96.1%) of the sample were married. Sixty – nine (88.5%) were Shona. In terms of level of education, 53 (68%) attained secondary level of education. A considerable percentage, 14 (17.9%) attained the minimum level of education which was the primary level. It was also noted that the majority, 49 (62.8%) were unemployed. A total of 12 (15.4 % were self employed. In terms of religion, 7 (9.0%) indicated that they were not affiliated to any religious group. However, 28 (35.9%) were traditionalists.

Table 4.3 displays results on the respondents' weight in kilograms. Notably, 7 (7.7%) weighed 60kg, 8 (10.2%) weighed 65kg and 5 (6.3%) weighed 85kg. The mean weight was 71.23kg.Thirty-three of respondents (42.5%) were above the mean weight.The standard deviation of the weight was 12.56.

Table 4.1

Sample Demographics (1) (N = 78)

Variable	Frequency	Percentage
Age in years		
20	2	2.6
22	7	9.0
23	5	6.4
24	5	6.4
25	4	5.1
26	4	5.1
27	4	5.1
28	2	2.6
29	4	5.1
30	5	6.4
31	3	3.8
32	6	7.7
33	6	7.7
34	5	6.4
35	2	2.6
36	3	3.8
37	2	2.6
38	3	3.8
39	1	1.3
40	2	2.6
41	1	1.3
43	1	1.3
45	1	1.3
Parity		
Two	55	70.5
Three	19	24.4
Four	3	3.8
Five	1	1.3
Gestation in Months		
Five	19	24.4
Six	4	5.1
Seven	20	25.6
Eight	19	24.4
Nine	16	20.5
Residence		
Urban	69	88.4
Married	2	2.6
Farming	5	6.4
Mining	2	2.6

Table 4.2

Sample Demographics (2) (N = 78)

Variable	Frequency	Percentage
Marital Status		
Single	2	2.6
Married	75	96.1
Cohabiting	1	1.3
Ethnic Group		
Shona	69	88.4
Ndebele	1	1.3
Malawi	8	10.3
Education		
Primary	14	17.9
Secondary	53	68.0
Tertiary	11	14.1
Occupation		
Unemployed	49	62.8
Self employed	12	15.4
Formally employed	10	12.8
Professional	7	9.0
Religion		
None	7	9.0
Christian	38	48.7
Protestant	4	5.1
Traditionalist	28	35.9
Apostolic faith	1	1.3

Table 4.3

Sample Demographics (3) (N = 78)

Variable	Frequency	Percentage
Weight in kilograms		
50	1	1.3
54	2	2.6
56	1	1.3
57	2	2.6
58	2	2.6
59	3	3.8
60	7	7.7
61	4	3.7
62	2	2.6
63	2	2.6
64	2	2.6
65	8	10.2
66	2	2..6
67	1	1.3
69	3	3.8
70	3	3.8
71	1	3.8
72	3	3.8
73	1	1.3
74	3	3.8
75	2	2.6
76	1	1.3
78	1	1.3
80	3	3.8
82	2	2.6
83	1	1.3
84	2	2.6
85	5	6.3
88	2	2.6
90	1	1.3
91	1	1.3
94	1	1.3
104	2	2.6
105	1	1.3

The results on Table 4.4 are based on the analysis of monthly family income in United States Dollars (USD). It was clear that 29 (37.2%) had no income and 8 (10.2%) earned only 100USD per month. Another group of 8 (10.2%) earned 150 USD per month. Four (5.0%) earned 200 USD per month. The mean income was 186.56 USD per month. The maximum monthly income was 1600 USD. However, only 1 (1.3%) had this maximum income.

Table 4.4

Sample Demographics (4) (N = 78)

Variable	Frequency	Percentage
Income in USD		
0	29	37.1
20	1	1.3
24	1	1.3
40	2	2.6
100	8	10.2
120	2	2.6
130	1	1.3
150	8	10.2
160	1	1.3
200	4	5.0
238	1	1.3
250	2	2.6
300	8	10.2
310	1	1.3
320	1	1.3
350	1	1.3
600	1	1.3
680	1	1.3
750	1	1.3
800	1	1.3
1200	1	1.3
1350	1	1.3
1600	1	1.3

Hypertension Control

Results on hypertension control are illustrated on Table 4.5. The cut-off blood pressure level indicating a well controlled blood pressure was 140 mmHg for systolic pressure and 90mmHg for diastolic pressure. Any values above these figures represented uncontrolled hypertension.

According to the results on Table 4.5, the systolic blood pressure levels ranged between 90 and 180mmHg. Twenty five (32.1%) had a systolic pressure of 100mmHg while 21 (26.9%) had a systolic pressure of 140mmHg. For 7 (9%) of the participants, the systolic pressure was 150 mmHg. A total of 39 (50 %) respondents exhibited systolic pressures ≥140mmHg. The mean systolic pressure was 135.09mmHg and the modal systolic blood pressure was 130mmHg. Fewer participants recorded the highest systolic blood pressure levels as indicated by only 1 (1.3%) with a systolic pressure of 180mmHg, 1 (1.3%) recording a systolic pressure of 161 mmHg and 3 (3.8%) with a systolic pressure of 160mmHg.

The diastolic blood pressure readings ranged from 50 to 120mmHg with a mean of 87mmHg. Notable diastolic blood pressure readings were 80mmHg recorded from 12 (15.4%) and 90mmHg recorded from 28 (35.9%) of the sample. Another 12 (15.4%) recorded a diastolic blood pressure of 100mmHg. Only 1 (1.3%) participant recorded the highest diastolic blood pressure level of 120 mmHg. A total of 49 (62.8%) of the sample recorded diastolic blood pressure levels ≥ 90mmHg. When both the systolic and diastolic blood pressure levels were analyzed, it was noted that

35 (44.9%) had blood pressure levels of 140/90 and above. Uncontrolled blood pressure levels were therefore exhibited in this proportion of the study sample. The blood pressure level for the majority, 43 (55.1%) was below the cut off point of 140/90 mmHg. Exhibiting good blood pressure control in that age group.

Table 4.5

Hypertension Control (N=78)

Variable	Frequency	Percentage
Systolic Blood Pressure in mmHg		
90	1	1.3
100	3	3.8
110	3	3.8
117	1	1.3
120	3	3.8
130	25	32.1
131	1	1.3
135	1	1.3
137	1	1.3
140	21	26.8
141	1	1.3
142	1	1.3
144	1	1.3
149	2	2.6
150	7	9.0
151	1	1.3
160	3	3.8
161	1	1.3
180	1	1.3
Diastolic Blood Pressure Readings in mmHg		
50	1	1.3
60	6	7.7
70	4	5.1
74	1	1.3
79	1	1.3
80	12	15.4
85	3	3.8
88	1	1.3
90	28	35.7
94	1	1.3
95	2	2.6
98	1	1.3
99	2	2.6
100	12	15.4
110	1	1.3
113	1	1.3
120	1	1.3
Summary of Blood Pressure Levels		
(Uncontrolled) Readings above 140/90mmHg	35	44.9
(Controlled) Readings Below 140/90mmHg	43	55.1

PIH Self Care Knowledge

Tables 4.6 and 4.7 show the first set of results on PIH self care knowledge. According to the results on Table 4.6, when asked about what PIH is, 53 (69.9%) knew the correct definition. Only 14 (17.9%) knew that PIH can occur as a result of renal disease and 36 (46.2%) knew that PIH may be caused by stress. However, the majority, 75 (96.2%) knew that PIH is not caused by bad spirits. Respondents were asked about a set of predisposing dietary and social habits that may worsen PIH. It emerged that 35 (44.9%) did not know that high salt diet may worsen PIH and only 26 (33.3%) knew that a high cholesterol diet worsens PIH. Thirty – five (44.9%) did not know that stressful situations worsen PIH. Only 20 (25.6%) knew that lack of exercise worsens PIH. In addition, only 30 (38.5%) knew that lack of adequate rest may worsen PIH. In terms of predisposing social habits, only 17 (21.8%) knew that taking cigarettes or snuff may worsen PIH. A minority 11 (14.1%) knew that drinking alcohol may worsen PIH.

Scoring for PIH self care knowledge levels commenced with results of responses displayed on Table 4.7. Seventy (89.7%) did not know that women with PIH needed to take extra caution if there is co-existing diabetes mellitus. Only 15 (19.3%) knew that extra caution is needed in cases of multiple pregnancy and 17 (21.8%) knew that caution is needed in cases of obesity.

In terms of knowledge of what to do when one has PIH, 59 (75.6%) knew that one had to attend clinic on scheduled dates. However, 45 (57.7%) did not know that one has to rest for 2 to 4 hours a day if diagnosed with PIH. When asked about what

to do for features of PIH, 53 (67.9%) knew that they should seek medical care for oedema of the feet. Fifty – four (69.3%) knew that they should seek medical care for constant headache and 49 (62.8%) knew that they should seek medical care for palpitations.

Table 4.6

PIH Self Care Knowledge (1) (N= 78)

Variable	Frequency	Percentage
Knowledge of PIH condition		
BP which starts when pregnant		
Yes	53	67.9
No	25	32.1
Knowledge of Causes of PIH		
Renal Causes		
No	64	82.1
Yes	14	17.9
Stress		
yes	36	46.2
No	42	53.8
Bad Spirits		
No	75	96.2
Yes	3	3.8
Knowledge of Factors that May Worsen PIH		
High salt diet		
No	35	44.9
Yes	43	55.1
High cholesterol diet		
No	52	66.7
Yes	26	33.3
Stressful situation		
No	35	44.9
Yes	43	55.1
Lack of Exercises		
No	58	74.4
Yes	20	25.6
Lack of adequate rest		
No	48	61.5
Yes	30	38.5
Smoking cigarettes/snuff		
No	61	78.2
Yes	17	21.8
Drinking Alcohol		
No	67	85.9
Yes	11	14.1

Table 4.7

PIH Self Care Knowledge (2) (N=78)

Variable	Frequency	Percentage
Knowledge of Conditions Requiring Extra Caution		
Diabetes		
No	70	89.7
Yes	8	10.3
Chronic Hypertension		
No	63	80.8
Yes	15	19.2
Multiple pregnancies (Twin/triplets)		
No	70	89.7
Yes	8	10.3
Obesity		
No	61	78.2
Yes	17	21.8
Knowledge of What to do When One has PIH		
Nothing		
No	68	87.2
Yes	10	12,8
Attend Clinic on Scheduled Dates		
No	19	24.4
Yes	59	75.6
Rest for 2 – 4 hours per day		
No	45	57.7
Yes	33	42.3
Knowledge of What to do for Features of PIH		
Oedema of feet		
Seek medical care	53	67.9
Rest at home	18	23.1
Go to faith healer	7	9.0
Constant headache		
Do nothing	1	1.3
Seek medical care	54	69.3
Rest at home	20	25.6
Go to faith healer	3	3.8
Breathlessness		
Do nothing	2	2.6
Seek medical care	57	73.1
Rest at home	16	20.5
Go to faith healer	3	3.8
Palpitations		
Seek medical care	49	62.8
Rest at home	27	34.6
Go to faith healer	2	2.6

Tables 4.8 and 4.9 display more results on scored PIH self care knowledge. Respondents' knowledge on what to do when predisposed to PIH was sought. Sixty-eight (87.2%) knew that they should book early and 62 (79.5%) knew that they should keep review dates. Fifty-nine (75.6%) knew that they should monitor fetal movements and 61 (78.2%) knew that they should have adequate rest. Fifty-nine (75.6%) knew that they should have regular exercise and 60 (76.9%) knew that they should take a balanced diet with low salt. Fifty-eight (74.4%) knew that they should seek medical care and 65 (83.3%) knew that they should take drugs as prescribed. There were 52 (66.6%) respondents who knew that they should lie mostly on the left side when predisposed to PIH. When asked about knowledge on resting techniques, 44 (56.4%) knew that lying down is a resting technique. Fifty-four (69.2%) knew that sitting with legs elevated on a stool is a way of resting.

Results on Table 4.9 show that in terms of knowledge of food to avoid, 58 (74.3%) knew that they should avoid fatty food while 63 (80.8%) knew that they should avoid salty food. Forty – five (57.9%) knew that they should avoid too much starch. On knowledge of social habits to avoid, 41 (52.6%) knew that they should avoid alcohol and another 41 (52.6%) knew that they should avoid cigarettes. Knowledge on how to exercise showed that 56 (71.8%) knew that doing household chores was a way of exercise and 58 (74.3%) knew that taking walks was a way of exercising. Only 12 (15.4%) and 15 (19.2%) knew that they should always perform mental and body relaxation respectively to manage stress. Forty - one (52.6%) mentioned that mental relaxation can be achieved through reading books.

Respondents were asked about to what extent medications should be taken and how efforts to lose extra weight should be done. Seventy-seven (98.7%) knew that prescribed medications should always be taken. Only 16 (20.5%) knew that one should always try to lose extra weight (see results on Table 4.9).

Table 4.8

PIH Self Care Knowledge (3) (N = 78)

Variable	Frequency	Percentage
Knowledge of what to do when predisposed to PIH		
Book early		
No	10	12.8
Yes	68	87.2
Keep review dates		
No	16	20.5
Yes	62	79.5
Monitor fetal movements		
No	19	24.4
Yes	59	75.6
Have adequate rest		
Yes	61	78.2
No	17	21.8
Regular exercise		
Yes	59	75.6
No	19	23.4
Take a balanced diet with low salt		
Yes	60	76.9
No	18	23.1
Seek medical care		
Yes	58	74.4
No	20	25.6
Take drugs as prescribed		
Yes	65	83.3
No	13	16.7
Lie mostly on left lateral		
Yes	52	66.7
No	26	33.3
Knowledge on Resting Techniques		
Lie down in bed		
Yes	44	56.4
No	34	43.6
Sit with legs elevated on stool		
Yes	54	69.2
No	24	30.8

Table 4.9

PIH Self Care Knowledge (4) (N = 78)

Variable	Frequency	Percentage
Knowledge of food and habits to avoid		
Fatty food		
Yes	58	74.3
No	20	25.7
Salty foods		
Yes	63	80.8
No	15	19.2
Too much starch		
Yes	45	57.7
No	33	42.3
Alcohol		
Yes	41	52.6
No	37	47.4
Cigarettes		
Yes	41	52.6
No	37	47.4
Knowledge on how to exercise		
Doing household chores		
Yes	56	71.8
No	22	28.2
Taking Walks		
Yes	58	74.4
No	20	25.6
Knowledge of frequency of stress management		
Mental Relaxation		
Never	11	14.1
Sometimes	55	70.5
Always	12	15.4
Body Relaxation		
Never	10	12.8
Sometimes	53	68.0
Always	15	19.2
Knowledge on how to get mental relaxation		
Reading books	41	52.6
Story Telling	31	39.7
Knitting	6	7.7
Knowledge on extent of taking prescribed medications		
Never	1	1.3
Always	77	98.7
Knowledge of extent to try and lose excess weight		
Never	62	79.5
Always	16	20.5

Table 4.10 show results on total PIH knowledge scores as well as a summary of PIH self care knowledge level. Actual PIH self care knowledge scores ranged from 6 to 24 out of a possible total of 48. The mean PIH knowledge score was 24 according to the designed PIH self care knowledge measuring instrument. A total of 58 (74.3%) demonstrated adequate PIH self care knowledge level by scoring above the mean of 24. Only 20 (25.7%) demonstrated low PIH self care knowledge levels because they scored PIH self care knowledge scores below the mean of 24.

Table 4.10

PIH Self Care Knowledge (5) (N = 78)

Variable	Frequency	Percentage
Total Scores PIH Self Care Knowledge Scores out of 48		
6	1	1.3
7	1	1.3
8	1	1.3
10	2	2.6
11	1	1.3
12	2	2.6
13	2	2.6
15	3	3.8
16	1	1.3
18	1	1.3
19	1	1.3
20	2	2.6
21	1	1.3
23	1	1.3
24	1	1.3
25	3	3.8
26	7	9.0
27	6	7.7
28	3	3.8
29	7	9.0
30	6	7.7
31	3	3.8
32	6	7.7
33	3	3.8
34	5	7.4
36	1	1.3
37	2	2.6
39	3	2.6
40	1	1.3
42	1	1.3
Summary of PIH Self Care Knowledge Level		
Good PIH Self Care Knowledge Scores (above the mean of 24)	58	74.3
Low PIH Self Care Knowledge Scores (below the mean of 24)	20	25.7

Relationship Between PIH Self Care Knowledge and Hypertension Control

Results of the Pearson Correlation matrix of PIH self care knowledge and hypertension control are shown on Table 4.11. According to the results on table 4.11, there was a very weak non - significant negative relationship (r = - 0.175) between PIH self care knowledge and hypertension control among the pregnant women with PIH. The result was non significant because the p value was greater than 0.05. This result showed that to a very small extent, as PIH self care knowledge increases, there is a decrease in the level of blood pressure.

Table 4.11

Pearson Correlation Matrix of PIH Self Care Knowledge and Hypertension Control

	Y
	1.000
X	- .175

*P < .05 **p < .01 *** < .001

Y = Blood Pressure Readings Signifying Hypertension Control

X = PIH Self-care knowledge

CHAPTER 5

DISCUSSION, IMPLICATIONS AND RECOMMENDATIONS

Introduction

A summary of the results and discussions of the major findings addressing the specific study question are presented in this chapter. This chapter discusses the findings implication and suggests some recommendations. Implications of the study findings to maternal and child health nursing practice and research including a discussion of the conceptual framework will be presented. Recommendations and limitations of the study are highlighted. The chapter concludes with a summary of the study.

Summary of Results

The purpose of the study was to describe and examine the relationship between self-care knowledge of pregnancy induced hypertension of pregnant women and hypertension control. The majority of participants demonstrated well controlled hypertension as 43 (55.1%) had blood pressure level below the cut off point of 140/90mmHg. In addition, the PIH self care knowledge level was low in only 20 (25.7%) of the participants. The relationship between PIH self car knowledge and hypertension control showed a very weak non significant relationship of the study variables (r = - .175).

Discussion of Findings

Sample Demographics

The ages for the sample ranged from 18 years to 45 years. The selected respondents made it possible to examine PIH self care knowledge and hypertension control in the young and middle aged pregnant women with PIH. This developmental group is thought to be able to grasp concepts taught and use these to control hypertension. The majority 43 (53.6%) were above the mean age of 29.87. According to Johansen (1993) incidence of pregnancy induced hypertension increases with age and parity and multiple pregnancies. Pregnant women with knowledge of pregnancy induced hypertension are likely to use this knowledge to control hypertension and reduce stress (Waba, 2007). The decision to attend antenatal clinic, deliver at home, in hospital or stay at home is initiated by the woman (Adaba Trovato & Lalu, 2001). Parity plays a part in the self-care knowledge of pregnant women with pregnancy induced hypertension. The condition is common in primiparous and also in multiparous women. The present study looked at those women who had two or more children as these would have received health education at previous ante natal visits on pregnancy induced hypertension. The study intended to elicit whether this knowledge previously gained was being used to control hypertension.

The condition of pregnancy induced hypertension occurs from 20 weeks of pregnancy to 42 days post delivery (maternal mortality report 2009). Over weight or obesity results in ineffective blood pressure control (Ignatavicious, Workman & Mishler, 1995). The study results showed that the mean weight was 71.23 kg. The mean systolic blood pressure and mean diastolic blood pressure were 135.09 mmHg

and 87.04 mmHg respectively. The findings indicated that the participants' weight was not excessive and that hypertension was under control.

In terms of marital status, the findings revealed that the majority 75 (96.2%) of the respondents were married, 2 (2.6%) were single and 1 (1.3%) was cohabiting. The results contradicted findings by Seedat (2000) who stated that in South Africa, ineffective blood pressure control increased among married urban women and rural widowed females. The increase in hypertension was as a result of stress associated with urban life and widowhood.

More than half of the respondents 53 (67.9%) attained secondary education. Most educated women are empowered to make appropriate decisions concerning self care (Adaba Trovato and Lalu, 2001). Deshpade et. al. (2000) and WHO (2006) also made the same observation that education employment and marital status influence knowledge utilisation and disease control. It is assumed that pregnant women who attend antenatal clinic understand the importance of acquiring knowledge and the relationship between self-care knowledge and hypertension control hence the importance of acquiring sound education. This supports the findings that people with less education are more likely to have in effective blood pressure control (Chockalingam et. al. 2000). However further research is necessary to discuss the relationship between individual's education and blood pressure control.

Sixty-nine (88.5%) respondents were Shona speaking. This is concurrent with the tribes that are found in Mashonaland Central Province.

Forty (62.8%) were unemployed. The unemployment probably was attributed to the fact that both mines were closed and the whole town depends on these mines for its existence. Consequently, the majority of respondents 29 (37.2%) had no monthly income. Eight (10.3%) earned 100 USD per month. Another 8 (10.3%) earned 150 USD per month. The mean income was 186.56. The maximum monthly income was 1600 USD per month for only 1 (1.3%) respondent. According to the Zimbabwe hospital fee structure, all the respondents were subject to paying for the health service and drugs since they are below the age of 65 years. Antenatal mothers are supposed to pay each time they come on their review dates. Therefore the low income may have an impact on the clients' ability to afford transport costs necessitated by the need for regular clinical reviews, purchasing of drugs and procuring the diet.

The majority of the respondents were Christians. This finding may have a positive impact on controlling stress levels among the PIH patients since most pastors encourage prayer for some stressful burdens. Prayer gives spiritual comfort to clients going through stressful situations (Fallen and O-Neill, 1998).

Hypertension Control

Hypertension control is by and large based on a decrease of the diastolic blood pressure levels (Nicholars & Poirier, 2000). The study results demonstrated that hypertension control was achieved for the majority of the participants. Fifty-seven (73.1%) of respondents had diastolic blood pressure levels of 90 mmHg and below. The research findings are in accordance with the essential drug list for Zimbabwe

(2006) as well as WHO standards which aim to achieve diastolic blood pressure levels of 90 mmHg and below. More evidence that blood pressure was well controlled for the majority of the participants came from the finding that for both systolic and diastolic blood pressure levels, 43 (55.1%) had blood pressure levels below the cut off levels of 140/90mmHg. However, the proportion of participants with uncontrolled blood pressure, 35 (44.9%) is still too big and needs to be addressed.

Hypertension control in the present study sample was much better than that reported in previous studies. Onusku (2003); Anderson & Douglas (2003) for example reported average systolic blood pressure levels of 153mmHg and average diastolic blood pressure levels of 105mmHg.

PIH Self Care Knowledge

Several dimensions were used to ascertain PIH self care knowledge. On the question pertaining to women's understanding of the term PIH 53 (67.9%) knew the correct answer. The occurrence of PIH has been attributed to evil spirits or bad humours ("zvishiri") in Zimbabwe especially in Mashonaland West and Mashonaland Central (Maketo, 2006). It was encouraging to note that this misconception was not common among the present study sample. Only 3 (3.8%) stated that bad spirits cause PIH. However, a large proportion of the participants, 64 (82.1%) lacked more specific knowledge that the exact cause of PIH is unknown. Evidence has been presented to indicate that the exact cause of PIH is unknown and may be determined by a single recessive gene (Chester 1999). This shows that whatever one does that person will still develop pre-eclampsia as the problem will be inherent in the person.

On what can predispose pregnant women to pregnancy induced hypertension. Seventy (89.7%) did not know that diabetes mellitus can predispose one to PIH. Sixty-three (80.8%) did not know that chronic hypertension can predispose one to PIH. However, more knowledge needs to be imparted on other predisposing causes of PIH such as multiple pregnancies and obesity. Higher percentages, 70 (89.7%) and 61 (78.2%) respectively did not know that multiple pregnancy and obesity can predispose to PIH. This lack of knowledge, particularly for obesity might prove to be detrimental to health particularly since most African women might take obesity to be an acceptable prestigious sign of being well looked after (Bhandari, 2008), hence the reluctance to try and lose weight. Weight reduction of 5 to 10% is recommended in obese clients (Merllens & Van Gaal, 2000). Manyemba (1997) in his study in Zimbabwe revealed that obese women had ineffective blood pressure control.

Most of the respondents appeared to lack knowledge that high cholesterol diet and lack of exercise may predispose to PIH. This lack of knowledge on the two important predisposing causes to PIH may translate to lack of PIH self care and an ultimate uncontrollable blood pressure. Even though, 43 (55.1%) participants demonstrated knowledge that high salt diet contributes PIH, the percentage of participants with this kind of knowledge ought to be higher. Continued reinforcement on the dangers of salt in predisposing to PIH in some susceptible patients is necessary so that this kind of knowledge does not become extinct with time. Chockalingham et al. (2000) concurred and stated that people should refrain from adding salt when cooking and at the table. A diet constituting low sodium is recommended (Pearson, et

al 1994) as the levels of sodium in the body decrease body fluids volume also decreases thereby contributing to a decrease in blood pressure (McCance & Huether, 1993).

Lesson learned; was that forty-eight (61.5%) cited that they did not know that lack of adequate rest predisposes to PIH. It was also disturbing to note that 61 (78.2%) did not know that smoking predisposes to PIH. Oligren (2000) study revealed significant association between smoking and blood pressure control. Midwives therefore need to counsel clients against smoking or taking snuff. In addition, 67 (85.9%) did not know that alcohol predisposes to PIH. Studies have indicated that the greater the reduction of daily intake of alcohol the higher the chances of blood pressure control (Pearson et al., 1994; Norman et al., 1999). Heavy alcohol consumption is associated with poor adherence to treatment (Black & Matassarin – Jacobs, 1993). Silaste et al., (2000) and Pearson et al., (1994) concurred and stipulated that drinkers forget to take medication.

A sizeable proportion of patients appeared knowledgeable on the fact that attending clinic was essential for PIH patients. However, only 33 (42.3%) appeared to know that resting for 2 to 4 hours a day was equally important. However, good knowledge levels were demonstrated on either seeking medical care or resting at home when one has oedema of feet, constant headache, breathlessness and palpitations. Participants were also generally knowledgeable on precautions to take when predisposed to PIH. These techniques are taught in antenatal clinics.

Participants also generally scored high on knowledge of foods and social habits to avoid.

Clients experiencing stress are encouraged to adopt stress management interventions including breathing exercises, and listening to music (Bailey et. al. 2001). Listening to music or watching television enables one to feel relaxed there by reducing stress. Exercise should be done routinely in moderation. Stress management techniques need to be integrated with the clients every day living as a way of promoting health. Stress contributes to very high blood pressure (Carrol, 2000). Therefore mental relaxation is essential. It was encouraging to note that the majority of respondents at least knew that mental relaxation or physical relaxation should be done always. Forty - one (52.6%) at least knew that reading books was a way of achieving mental relaxation.

Physical activity has been noted to reduce body fat, peripheral resistance and cardiovascular load thereby enhancing blood pressure control (Taylor-Tolbert et al, 2000; WHO, 2002). Non-strenuous physical activities such as house chores and walking are recommended and are initial steps to attain blood pressure control (Hagberg, Park & Brown, 2000). According to Kelly and Kellys study (1999) physical activity causes a small reduction in blood pressure control. Blumental et al., (2001) further states that combined physical activity and weight reduction contribute to blood pressure control. Over 70% of the study sample in the present study knew about the importance of physical activities using various techniques ranging from taking walks to doing household chores.

With regards to taking medication as prescribed, 77 (98.7%) knew that they should always take medication as prescribed. Blood pressure control was probably attributed to drug adherence as a result of the good knowledge in this regard. The findings concur with Hill et al. (1999) who stated that clients taking anti hypertensive drugs as prescribed are more likely to have blood pressure controlled compared to those not adhering to prescribed medication. According to Nicholas and Poreier (2000) adherence to medication is essential to achieve blood pressure control. Cohen (2001) and Cuspid et. al. (2001) also highlight that adherence to medication contributes to sufficient blood pressure control. This further shows that adherence to prescribed medication is a component of hypertension control.

The total PIH self care knowledge scores in the present study sample demonstrated a minimum knowledge score of 6 and a maximum knowledge score of 42 out of 48. Generally, participants therefore had good PIH self care knowledge skills since 58 (74.3%) participants scored PIH self care knowledge scores above the mean of 24.

PIH Self Care Knowledge and Hypertension Control

The findings of the present study showed very weak and non significant linear negative relationship ($r = -.175$). The Pearson's correlation coefficient of -.175 shows that as PIH self care knowledge increases, the level of hypertension decreases although the relationship is not statistically significant. A decrease in the level of hypertension then meant a good hypertension control. This meant that as PIH self-care knowledge increased, hypertension control was being achieved through a

decrease in blood pressure. According to Burns and Grove (1997) as negative and positive values approach zero the strength of the linear relationship decreases. An "r" value of .1 to .3 is considered a very weak linear relationship.

The findings concur with findings by Kumari, et al (2003) who reported that in their intervention study, 64% of the sample in the experimental group had their blood pressure stabilized following acquisition of PIH self care knowledge. In addition, 21% of the sample from the intervention group had low blood pressure levels from the baseline measurements.

Theoretical Framework

Orem's self care model successfully guided this study and assisted in explaining the links between the study variables. In this study the pregnant woman with hypertension was viewed as a self-care agent with self-care demands. In general, PIH women in this study were found to have less self care deficits than previously hypothesized. Therefore, it can be concluded that the women did not have a lot of self care demands and hence were able to look after themselves so as to control hypertension. This ability meant that the women had adequate self care agency.

Self-care means care that is performed by one's self. It is regarded as the deliberate action with an overall purpose related in meeting specific individual requirements. The pregnant women for example appeared able to perform and decide on responsible actions to take so as to manage hypertension in pregnancy.

The study was based on the understanding that as self-care knowledge of pregnancy induced hypertension increases hypertension control is achieved through a

decrease in blood pressure. This was supported by findings as there was negative correlation of PIH self-care knowledge and hypertension.

Implications to Maternal Child Health (MCH) Nursing.

Implications for MCH Nursing Practice

The study results showed that PIH self-care knowledge has an impact on hypertension control. In maternal child health there is need for PIH clients with pregnancy induced hypertension to be actively encouraged in planning and implementing care. MCH practice needs to reinforce self-care adopted through counseling clients and initiating teaching programmes on the value of self-care knowledge. This endeavour should be carried out with the hope that continuous exposure to the information will increase the clients' awareness and therefore adopt healthy life style behaviours. Use of Orem's self care model would help nursing practice to guide, direct and provide physical support, psychological support and a conducive environment. The supportive educative nursing system can readily be adopted for better outcomes. The nurse can just educate the individual where information is lacking while the client practices self-care.

Implications to Nursing Research

The findings revealed that further research on PIH self care knowledge among pregnant women is necessary. Although generally, PIH self care knowledge was good, there are areas of knowledge deficit still need strengthening. Participants scored low on knowledge of risk factors such as obesity and the need to reduce weight for example. Further inquiry into the women's perceptions on weight gain and obesity is

indicated. The findings would guide clearing of any misconceptions while strengthening PIH self care knowledge in this regard.

Implications to Nursing Education

Educational programmes need to be constantly upgraded by literature and research findings. MCH nursing education should include the latest recommended evidence based literature. Midwifery tutors therefore need to continue strengthening PIH self care knowledge to their clients The evidence from the present study that PIH self care knowledge impacts on hypertension control necessitate the need to even strengthen continuing education sessions to practicing midwives. Ultimately continuous reinforcement of knowledge skills to achieve upgraded levels of self care will be a continuous feature during antenatal classes. A behavior change in the PIH women will be instilled in order to influence change in behaviours of PIH pregnant women. Health education content could be tailor made to fill the gaps in PIH self-care knowledge among pregnant women.

Limitations of the Study

The limitations in this study were:

1. The study utilized a sample size smaller than the calculated sample size of 85. The calculated sample size could not be achieved as the number of women attending antenatal clinic diminished due to deterring fees introduced just before data collection commenced. As a result a smaller sample size of 78 was achieved. The small sample size limits external validity of the study. Therefore

the findings of this study cannot be generalized to the rest of the target population.

2. A structured interview schedule was used to obtain data. However self-care knowledge are best measured by participant observation, thus in this study the investigator relied on clients' self reports which could be a source of bias.

3. The research tools used in this study were developed and used by the investigator in this study for the first time without psychometric tests. The research tools cannot be free from flaws. This could have affected the reliability of the data collected.

Recommendations

1. Pregnant women with pregnancy induced hypertension should be encouraged to adhere to reduction of dietary sodium intake

2. Continuous teaching needs to be provided on PIH self-care knowledge to pregnant women with pregnancy induced hypertension. The client teaching should include the importance of weight reduction and relevance of obesity in worsening PIH.

3. In service courses should be given to practicing nurses and educators to ensure that they have current information which is culturally relevant and user friendly on PIH self care knowledge and hypertension control. This will assist clients to adapt and maintain their health pertaining to diet, reduction in

alcohol consumption reduction in tobacco consumption, physical activity and adherence to medication.

4. The study should be replicated with a larger sample to foster generalizability of the findings beyond the present study sample.

Summary

The present study was necessitated by an observation that hypertension control remains problematic in Zimbabwe, regionally and world wide. Ineffective blood pressure control has also been reported to be a major cause of mortality and morbidity in neonates and in pregnant women. The purpose of the study was to describe and examine the relationship between PIH self-care knowledge and hypertension control among pregnant women with PIH. Orem self-care model was used to guide the study.

A descriptive correlational study design was used. The study sample consisted of 78 pregnant women aged between 18 – 45 years who were para 2 and had PIH. The sample was selected by simple random sampling method. Data was collected using a structured interview schedule and a sphygmomanometer and stethoscope to measure the level of blood pressure. The interview schedule comprised of a demographic data questionnaire, a hypertension control section and a PIH self care knowledge questionnaire. Data were analysed using descriptive statistics and the Pearson correlation coefficient inferential statistic to test the relationship between PIH self care knowledge and hypertension control. The study findings enabled conclusions to be drawn based on the three research questions as follows;

1. What is the level of PIH self-care knowledge among pregnant women with PIH in Bindura District? Good PIH self care knowledge was demonstrated by the study sample. A total of 58 (74.3%) scored above the mean PIH self care knowledge score of 24.
2. What is the extent of hypertension control among pregnant women with PIH in Bindura District? Generally, hypertension control was adequate and good. Only 35 (44.9%) participants had blood pressure readings above the cut – off level of 140/90 mmHg.
3. What is the relationship between PIH self care knowledge and hypertension control among pregnant women with PIH in Bindura District?

There was a non significant very weak negative relationship between PIH self care knowledge and hypertension control ($r = -.175$). This suggested that PIH self-care knowledge had a negative effect on diastolic blood pressure. Although statistically non-significant, the results support the findings that PIH self-care knowledge has an effect on blood pressure control.

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APPENDIX A

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INFORMED CONSENT FORM

My name is Mrs Inviolata Pswarayi, a student at the University of Zimbabwe in the department of nursing science undertaking a major of Science in Nursing Science degree Programme. Presently I am undertaking a research project examining the relationship between PIH self-care knowledge of pregnant women and hypertension control.

Permission is therefore requested for you to participate in the study. Your participation is voluntary you are allowed to withdraw at any time if you so with without any reprimand, penalty or loss of any health benefit entitled to you. All information obtained from you will be treated privately and confidentially. No names will be written on the structured interview schedule to ensure anonymity and confidentiality on the code number will appear on the structured interview schedule and findings will be reported as group data.

The interview will take 30 minutes or more and you will be asked questions about yourself what you know about pregnancy induced hypertension and hypertension control. The knowledge gained will be used to improve quality of information skills and competences imparted to women with pregnancy induced hypertension you can contact me for any questions or clarifications at Bindura District Office no 260 Thomazos. May you please sign this form to indicate your willingness to participate in the study.

Respondents Signature ……. Date ……..

Investigators signature ……. Date …….

APPENDIX B

DEMOGRAPHIC DATA QUESTIONNAIRE

Structured Schedule Item Number: ……

1. How old are you? ☐

2. How many children do you have? ☐

3. How old is your pregnancy in months? ☐

4. Where do you reside?

Urban ☐
Rural ☐
Farming area ☐
Mining area ☐

5. What is your marital status?

Single ☐
Separated ☐
Divorced ☐
Widowed ☐
Married ☐
Cohabiting ☐

6. Which ethnic group do you belong to?

Shona ☐
Ndebele ☐
Other …….

7. What is your level of education?

None ☐
Primary ☐
Secondary ☐

Tertiary ☐

8. What is your occupation?

Unemployed ☐
Self employed ☐
Formally employed ☐
Professional ☐

9. What is your religion?

None ☐
Christian ☐
Protestant ☐
Traditionalist ☐
Apostolic Faith ☐

10. Weight in kg ☐

11. What is your family monthly income in USD? ☐

APPENDIX C

HYPERTENSION CONTROL INSTRUMENT

12. I would like to record your blood pressure while sitting in upright position.

Systolic Pressure in mmHg	Diastolic Pressure in mmHg

APPENDIX D

PIH SELF-CARE KNOWLEDGE QUESTIONNAIRE (PIHSCKQ)

I am going to ask you some questions on how much you know about looking after yourself in terms of PIH. Please answer to the best of your knowledge.

13. What do you understand by pregnancy induced hypertension (PIH)?

	Yes	No
a. High blood pressure that occurs in pregnancy after 20 weeks gestation to 42 days post delivery		
b. Blood pressure which starts when one is not pregnant		

14. What causes pregnancy induced hypertension?

	Yes	No
a. Real cause not known		
b. Stress		
c. Bad spirits		

15. Which contributing factors may worsen pregnancy-induced hypertension (PIH)?

	Yes	No
a. High salt diet		
b. High cholesterol diet		
c. Stressful situations		
d. Lack of exercises		
e. Lack of adequate rest		
f. Smoking cigarettes/snuff		
g. Drinking alcohol		

16. Which of the following conditions require a woman with PIH to take extra caution?

	Yes	No
a. Diabetes Mellitus	1	0
b. Chronic Hypertension	1	0
c. Multiple pregnancies (twin/triplets)	1	0

d. Obesity

1	0
1	0

17. Since you know that you have PIH, what should you do about it?

a. Nothing	Yes 1	No 0
b. Attend clinic on scheduled dates to have my condition monitored	1	0
c. Give myself 2 – 4 hours rest per day	1	0

18. What should you do if you have the following problems?

	0	1	2	3
a. Oedema of feet	0	1	2	3
b. Constant Headache	0	1	2	3
c. Breathlessness	0	1	2	3
d. Palpitations	0	1	2	3

Key: 3 = seek medical care, 2 = rest at home, 1 = seek help at faith healer, 0 = seek help from traditional healer.

19. What should pregnant women with PIH predisposing factors do?

a. Book early	Yes	No
b. Keep review dates	1	0
c. Monitor fetal movements	1	0
d. Have adequate rest for 2 – 4 hours per day	1	0
e. Lie on left lateral position	1	0
f. Regular exercises	1	0
g. Take balanced diet with low salt	1	0
h. Seek medical care on time	1	0
i. Take drugs as prescribed	1	0

20. What should pregnant women with PIH do in order to rest themselves?

a. Lie down in bed on left side	Yes (1)	No (0)
b. Sit down with legs elevated legs on stool/chair	Yes (1)	No (0)

21. Which of the following food / habits should you avoid since you have PIH?

a. Fatty foods	Yes (1)	No (0)
b. Salty foods	Yes (1)	No (0)
c. Too much starch	Yes (1)	No (0)
d. Alcohol	Yes (1)	No (0)
e. Cigarettes	Yes (1)	No (0)

22. How should you exercise in order to reduce hypertension?

a. Carry out house chores	Yes (1)	No (0)
b. Take walks	Yes (1)	No (0)
c. Do strenuous exercises	Yes (1)	No (0)
d. Nothing	Yes (1)	No (0)

23. To what extent do you engage in stress management?

	Never	Rarely	Sometimes	Always
a. Mental relaxation	0	1	2	3
b. Body relaxation	0	1	2	3

24. What of the following activities give mental relaxation?

a. Reading books	1
b. Story telling	1
c. Knitting	1

25. To what extent should you take medicines as prescribed?

Always [1] Never [0]

26. To what extent should you try to loose weight?

Always [1] Never [0]

Thank you for your time and participation.

CHIRATIDZWA E

GWARO REBVUMO

Ini ndinonzi Inviolata Pswarayi . Ndiri mwana wechikoro ku University ye Zimbabwe

Kunzvimbo inodziidzira vana mukoti.Ndiri kuita masters muNursing science.

Pakudziidza uku pane tsvagurudzo yandinofanira kuita.Chinangwa ndeche kuongorora kuti pane

Ukama here pakati peruzivo rwekuzvichengetedza runofanirwa kuva nemadzimai ane pamuviri

Ivo vaine BP ne kuderera kwe BP yavo.

Mvumo iri kukumbirwa kwamuri kuti mumwe anobatsira mutsvagiridzo iyi.

Kupinda kwenyu muchirongwa ichi hakumanikidzwi.Izvizvinoreva kuti munokwanisa kubuda

Muchirongwa ichi pasina chinozoitwa kwamuri kana chamunorasikirwa nacho.Zvamunondiudza

Hazviudzwi mumwe munhu zvake.Hapana mazita achanyorwa pamapepa acho.Mapepa aya

Achange aine nhamba chete uye achagara akakiyirwa kuti pasave nemunhu anoaona..Ini chete

Ndini ndinobvumidzwa kuona mapepa iwayo.Kana tapedza tsvagurudzo iyi mapepa acho achabvarurwa

Haachengetwe.Kutaura nemi kuchatora maminetsi gumi nematatu kana kudarika zvishoma.

Ruzivo ruchawanikwa mutsvagiridzo iyi ruchabatsira mukudziidzisa vamwe venyu kana

Kudzidzisa vana mukoti.Kana muine zvamunoda kubvunza kwandiri ndinowanikwa kuchipara

cheBindura kuno ku Mashonaland Central panamba 260 muna Thomazos.

Ndinokumbira kuti mundisainirewo pepa iri kuratidza kuti tabvumirana kuti mabvuma kupinda
Muchironga.

Runyoro rwenyu ……Zuva ……

Runyoro
rwangu……Zuva…….

CHIRATIDZWA F

GWARO RENHOROONDO YEMUBVUNZWI

Musoro wechidzidzo: Hukama huri pakati pe maitiro akanaka muvakadzi vane chirwere che BP uye vaine pamuviri ne kudzoreredzwa kwe BP kuti isvike pari nani. ☐

1. Mune makore mangani?
2. Mune vana vangani? ☐
3. Pamuviri penyu panemwedzi mingani? ☐
4. Munogara kupi?

Mudhorobha ☐
Muruzevha ☐
Kupurazi ☐
Kumigodhi ☐

5. Makaroorwa here?

Handina kuroorwa ☐
Takasiyana ☐
Takarambana ☐
Ndakafirwa ☐
Ndakaroorwa ☐

Tinongogarisana ☐

6. Muri murudzii?

Mushona ☐
Mundevere ☐
Zvimwewo …….

7. Makadziidza kusvika papi?

Handina kudzidza ☐
Danho rekutanga ☐
Sekondari ☐
Kukoreji ☐

8. Munoita basa rei ?

Handishandi ☐
Ndinozvishandira ☐
Ndakabayirwa chitupa ☐
Basa reunyanzvi rwe pamusoro ☐

9. Munonamata svondo ipi?

Handipinde ☐
Ndirimutenderi ☐
Mupositori ☐
Zvechivanhu ☐

10. Huremu ☐

11. Mari inotambirwa mumhuri yenyu (USD)? ☐

CHIRATIDZWA G

HUDZAMU HWE BP

12. Ndinoda kukutorai BP makagara pachigaro

Nhamba yepamusoro	Nhamba yepazasi
----------mmHg	----------mmHg

CHIRATIDZWA H

RUZIVO MAERERANO NEKUZVICHENGETEDZA

Ruzivo rwekuzvi chengetedza pachirwere chekukwidzwa BP pamudzimai ane pamuviri.

Ndinoda kukubvunzai mibvunzo maererano nezva munoziva pamusoro peBP inorwariwa nemadzimai vane pamuviri. Mudavire zvamunokwanisa

13. Munonzwisiseyi nezve chirwere che BP ino wanikwa pamadzimai ane pamuviri?

	Hongu	Kwete
a. BP muine pamuviri		
b. BP inongoita munhu wese kunyangwe asina pamuviri		

14. Chirwere cheBP mune pamiviri chinokonzerwa nei?

	Hongu	Kwete
a. Hazvizivikanwi		
b. Kushungurudzika		
c. Mweya yakaipa		

15. Ndezvipi zvinga wedzera chirwere che BP kumudzimai ane pamuviri?

16. Pane zvinotevera ndezvipi zvingaise mudzimai ane pamuviri panjodzi aine BP?

	Hongu	Kwete
a. Chirwere cheshuga	1	0
b. Chirwere che BP yaagara ainayo	1	0
c. Pamuviri pema patya kana kuti vana vatatu	1	0
d. Muviri wakanyanya	1	0

17. Kubvira pamakazviziva kuti mune BP inokonzerwa nepamuviri munofanira kuiteyi nazvo?

	Hongu	Kwete
a. Hapana	1	0
b. Kuenda kuchikero nezuva randakapiwa	1	0
c. Ndinozorora kwema awa maviri kana mana pazuva	1	0

18. Mukaona mava nezvinotevera munofanira kuiita sei?

a. Kuzvimba makumbo	0	1	2	3
b. Kutemwa nemusoro	0	1	2	3
c. Kuzarirwa	0	1	2	3
d. Kurohwa nehana	0	1	2	3
	0	1	2	3

3 = Ndinoenda kuclinic, 2 = ndinozorora kumba, 1 = kuenda kumuporofita, 0 = kuenda kun'anga.

19. Mudzimai ane pamuviri uye aine chimwe chinogona kuti BP yeke ikwire ano fanirwa kuita sei?

	Hongu	Kwete
a. Kunyoresa paine nguva	1	0
b. Anofanira kuchengetedza mazuva ekusikero	1	0
c. Anofanira kuteera kutamba kwemwana	1	0
d. Anofanira kuzorora zvakakwana kwemaawa maviri pazuva	1	0
e. Kurara neruboshwe	1	0
f. Kuita zvinosimbisa muviri	1	0
g. Kudya kunovaka muviri kuine sauti shoma	1	0
h. Anofanira kuenda kunoonekwa nekuchimbidza kana achirwara	1	0
i. Kutora mishonga sematarirwo ayo	1	0
	1	0

20. Madzimai vane pamuviri vane BP yakakonzerwa nepamuviri kuti vangaite sei kuti vazorore?

	Hongu	Kwete
a. Kurara mumubhedha nekuruboshwe	1	0
b. Kugara vakatambarara vakakwidza makumbo	1	0

21. Ndezvipi zvamusingafaniri kutora nekuda kwekutimune BP?

	Hongu	Kwete
a. Kudya kune mafuta akawanda	1	0
b. Kudya kune sauti yaka wanda	1	0
c. Sadza raka wanda	1	0
d. Kunwa hwahwa	1	0
e. Kuputa fodya	1	0

22. Ndezvipi zvamungaite kusimbisa muviri kuti BP iderere?

	Hongu	Kwete
a. Kuita mabasa emumba	1	0
b. Kufamba chinhambwe	1	0

23. Munofanira kuyedza zvakadini kuita zvinotevera kuti muderedza kushunguridzikana kwamunenge munako?

	Nyangwe	Nenguva dziri kure	Dzimwe nguva	Nguva dzose
a. Kuzorodza pfungwa	0	1	2	3
b. Kuzorodzamuviri	0	1	2	3

24. Munofanira kuzorodza pfungwa nekuita zvipi?

a. Kuverenga magwaro	1
b. Kutaura ngano	1
c. Kuruka majuzi	1

25. Mushonga yamunenge manzi munwe munofanira kuitevedza zvakadini?

a. Mazuva ose sematauririrwo azvo	1
b. Hazvina basa kuitevedza	0

26. Munofanira kuyedza kuderedza huremu hwe muviri wenyu zvakadii?

a. Nguva dzose	1
b. Handifaniri	0

Ndatenda