EFFECTIVENESS OF BENSON'S RELAXATION THERAPY ON BLOOD PRESSURE AMONG MOTHERS WITH PIH AT SELECTED HOSPITALS, CHENNAI, 2011.

DISSERTATION SUBMITTED TO

THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY

CHENNAI

IN PARTIAL FULFILMENT OF REQUIREMENT FOR THE DEGREE OF

MASTER OF SCIENCE IN NURSING

APRIL 2012

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ABSTRACT

A quasi-experimental study to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai, 2011.

INTRODUCTION

High blood pressure during pregnancy can decrease the amount of blood flow to the placenta, which affects the baby's supply of oxygen and nutrients. This may slow down the baby's growth and increase the risk of preterm delivery and if left unmanaged, this may result in fetal and maternal mortality. Therefore, antenatal mothers should be periodically investigated to rule out abnormal and sustained elevations in blood pressure, which should be managed appropriately in a timely manner to prevent complications arising from it.

Studies have shown that as like pharmacological therapy and other complementary modalities, relaxation techniques go a long way in reducing hypertension and sustaining it at controlled levels chronically.

Relaxation provides a decrease in sympathetic nervous system allowing the arteries to widen and increases the available oxygen and blood flow to the body tissues and the peripheries.

Thus it has been found through studies that, appropriate prenatal care and proper lifestyle modifications like regular visits to the physician's office for checkups, diet, exercises, and relaxation techniques can help to prevent complications arising out of pregnancy and have proved to be the better key in reducing the risks from pregnancy.

Complementary therapy in nursing is diverse and complex as like other nursing specialties. Keeping this in view, the present study was done to assess the

effectiveness of Benson's relaxation therapy on blood pressure control among mothers with PIH in a cost effective way.

. **Objective**

To assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH.

METHODOLOGY

Research design

Quasi - experimental design-non equivalent control group. .

Setting

The study was conducted in selected hospitals in Chennai. Approximately 35-50 PIH mothers were admitted per month in both the selected hospitals.

Participants

60 mothers with PIH between 20 to 38 weeks of gestational age from selected hospitals, Chennai.

Intervention

Administration of Benson's relaxation therapy to the mothers with PIH and assessing the blood pressure level by standardized sphygmomanometer before and after therapy. A pamphlet was prepared and given to provide information regarding the steps to be followed in Benson's relaxation therapy.

Measurements and Tool

The blood pressure level of mothers with PIH was assessed by sphygmomanometer and categorized them according to **WHO/ISH -Blood pressure classification for PIH (2009)[93]** standard guidelines. Descriptive and inferential statistics were used to analyze the data.

RESULTS

The present study aimed to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai. The analysis revealed that the mean difference in post-test systolic blood pressure was 30.06 and 15.4 in post-test diastolic blood pressure with the calculated 't' value of 13.252 and 14.588 respectively which showed high statistical significance at p<0.001 between Group A and Group B.

DISCUSSION

The study concluded that there was a significant difference in the blood pressure level among mothers with PIH in the post test after Benson's relaxation therapy. Thus Benson's relaxation therapy was an effective tool to control blood pressure among mothers with PIH.

Implications

The study can be applied to nursing practice, nursing education, nursing administration and nursing research.

The midwives have a vital role in providing safe and effective nursing care to prevent the complication of PIH. This can be facilitated by keeping in pace with the changing trends so as to provide adequate information and guidance to mothers with PIH mothers in order to prevent complications and encourage them to do Benson's relaxation therapy as a part of their daily routine.

Encourage the nursing students for effective utilization of research based practice in controlling blood pressure and to gain skills in practicing Benson's relaxation therapy and implement effectively in the hospital and in home setting.

Collaborate with governing bodies in formulating policies and employ specially qualified nurses trained in alternative and complementary therapies and can be included as a part of complementary therapies in nursing curriculum.

CHAPTER – I

INTRODUCTION

BACKGROUND OF THE STUDY

God's interest in the human race is nowhere better evinced than in obstetrics. ~**Martin H. Fischer**

Pregnancy and motherhood has been considered the most fulfilling experience for a woman and a very important phase in her life. A woman in our society is considered as a goddess because she is most privileged to bear the offspring of her husband's family and therefore she is responsible for the continuity of his family line. Pregnancy, the transition from an embryo to a fetus is considered nothing less than a miracle by the scientists and the medical fraternity.

Over the course of the pregnancy the hematological changes occur in the plasma with consequent increase in blood volume by 40-50%, which helps to accommodate the changes brought on by this process. The increase in plasma volume increases the aldosterone level and thus leading to increased heart rate, stroke volume, and cardiac output.

The cardiac output increases to about 50% during the first trimester. The systemic vascular resistance also drops due to the smooth muscle relaxation and overall vasodilation caused by elevated progesterone, leading to a fall in blood pressure. Diastolic blood pressure consequently decreases between 12–26 weeks, and increases again to pre-pregnancy levels by 36 weeks. During this stage of pregnancy, abnormal physiological changes may occur, which may in turn result in gestational hypertension.

High blood pressure during pregnancy can decrease the amount of blood flow to the placenta, which affects the baby's supply of oxygen and nutrients. This may slow down the baby's growth and increase the risk of preterm delivery and thus become the cause for fetal and maternal mortality. Therefore, antenatal mothers should be periodically investigated to rule out abnormal and sustained elevations in blood pressure.

One of the leading causes of maternal death is pre-eclampsia—the rapid elevation of blood pressure during pregnancy which may lead to seizures (eclampsia), kidney and liver damage, and ultimately death. About 63,000 women and their babies are affected by poorly managed eclampsia and severe pre-eclampsia each year. **Royal College of Obstetricians and Gynecologists report (2009)[107.]**

Globally high blood pressure problems occur in 6 to 8% of all pregnancies, about 70% of which are first-time pregnancies.

In most of the Asian countries the estimated reduction of maternal mortality by three quarters as stated in the **millennium development goal** have not yet achieved. This has reached such epidemic proportions that countries around the world have finally started to take this problem and emphasize on reducing MMR by ¾ by 2015. **UNICEF/UNFPA (2005**) [108.]

India records a high maternal mortality ratio of 450 per 100,000 live births in 2005. National estimates of maternal mortality are reported as 254 per 100,000 live births **(RGI, SRS 2004/06) [103]**.

Studies have shown that as like pharmacological therapy and other complementary modalities, relaxation techniques go a long way in reducing hypertension and sustaining it at controlled levels. Relaxation provides a decrease

in sympathetic nervous system allowing the arteries to widen and increases the available oxygen and blood flow to the body tissues and the peripheries.

The neural pathways of the sympathetic and the parasympathetic system guide the function of the stress response and the relaxation response. Through a training process involving relaxation exercises, the patient learns to regulate a balance in these pathways.

Relaxation works through psycho-physiological means implying that both the mind and the body are involved in the quieting process. Progressive muscle relaxation training focuses on the muscle groups and allows them to relax.

A Harvard physician in the US proved the mind body connection   by showing simple relaxation techniques practiced for 10-20 minutes per day can help to reduce hypertension, help to control stress, decrease anxiety, improve cardiovascular health, and achieve a greater capacity for relaxation. **Dr.Herbert Benson (1976)** [84.]

Relaxation techniques such as Herbert Benson's Relaxation Response, meditation and hypnosis suggest that relaxation starts in the thought processes, the cognitive process of the mind

Complementary therapies are currently one of the most discussed and debated health   care topics and are in vogue in developed countries like the US. The results of several national surveys indicate that the majority of people seek out complementary and alternative therapies because they find these approaches to health care congruent with their own values and beliefs and physiological orientation towards health and life.

Various forms of relaxation therapies have been found to benefit patients in diverse ways. Physiologically, relaxation helps in the reduction of sympathetic

nervous system excitation that marks the **fight or flight response** and decreases the level of stress. Simply relaxing for 15 to 20 minutes twice or thrice daily results in lowered levels of adrenaline, cortisol, blood pressure, heart rate, and respiratory rate, which enhance the immune function and balance the activity in the right and the left hemispheres of the brain. **Nirmal Kaur (2009)** [70.]

Thus it has been found through studies that prenatal care and lifestyle modifications can help in preventing complications arising out of pregnancy such as regular checkups, diet, exercises, and relaxation techniques which have been proved to be the better key in reducing the risks in pregnancy.

The main focus of this study was to assess the effectiveness of Benson's relaxation therapy on blood pressure control and to improve the maternal health outcome by preventing complications due to pregnancy induced hypertension in a cost effective and simple way.

NEED FOR THE STUDY

An ounce of prevention is worth a pound of cure - **Jennifer Shweky**

Pregnancy induced hypertension is one of the extensively present disease today. Whereby, PIH is the 2nd leading cause of death in developed countries and 4th leading cause of death in the developing countries.

Over the last few years, globalization has resulted in India in the process of transitioning from a developing to a developed country with increase in per capita income, food and lifestyle changes along with increased stress levels both at home and social environment

More than half a million women each year—one in every 90 seconds—dies due to pregnancy and childbirth. Among this hypertensive disorders in pregnancy complicate up to 12–22% of all pregnancies and are the second leading cause of

maternal death and also contribute significantly to neonatal morbidity and mortality.

Although the proportion of pregnancies with gestational hypertension and eclampsia   has remained about the same over the past decade, the rate of preeclampsia has increased by nearly one-third. This increase is due to a rise in the numbers of older mothers and of multiple births.

Some of the factors that complicate pregnancy are severe bleeding/ hemorrhage (25%), infections (13%), unsafe abortions (13%), *eclampsia (12%)*, obstructed labor (8%), other direct causes (8%), and indirect causes (20%) such as malaria, anemia, and HIV/AIDS . **WHO Report (2005)**[109].

According to the **National Center for Health Statistics (2009)**[105], pregnancy and child birth among women in the age group of > 30 yrs contribute to the complications to the highest level in the past 3 decades.

A prospective study in India was conducted to determine the prevalence of PIH among 400 pregnant mothers; the study findings revealed that the overall prevalence of PIH was 27%. **Datta.N. (2006)**[48].

Every year, more than half a million women living in developing countries die from pregnancy or childbirth-related complications. About a quarter of these "maternal" deaths occur in India. In 2005, a woman's lifetime risk of maternal death is estimated to be 1 in 70.

India which will soon achieve a state of development, have a higher risk in progressing from 4th place to 2nd place. Due to ill effects of globalization there is increased incidence of PIH when compared to few years ago. And this trend is expected to continue along the same lines and may even exceed the present incidence in developed countries. Hence, it is of utmost importance to help to

contribute in arresting this trend and bringing down the incidence rates of PIH in Indian women.

A scientific and philosophical researcher outlines the importance and benefits of relaxation and meditation which has got many benefits and it can reverse stress thereby preventing many health hazards. Practicing relaxation and meditation will decrease heart rate and respiratory rate and normalizes blood pressure and uses less oxygen more effectively for the body function. **Havaldhar.M.N.(2010)[54].**

Being in the nursing field, the investigator during clinical postings have observed and cared for mothers with PIH. Hence this was a motivating factor to undertake this study and also a factor to formulate emphatic and cost effective means of controlling PIH incidences in women, which is a small contribution to a massive effort needed to meet the millennium goals in bringing down the maternal mortality rate by 2015.

STATEMENT OF THE PROBLEM

A quasi-experimental study to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai, 2011.

OBJECTIVES

1. To assess the pre-test and post- test level of blood pressure among mothers with PIH in Group A and Group B.
2. To compare the pre-test and post- test level of blood pressure among mothers with PIH in Group A and Group B.
3. To compare the pre-test and post-test level of blood pressure among mothers with PIH between Group A and Group B.
4. To associate the mean difference in post-test blood pressure level with selected demographic variables among mothers with PIH in Group A.

OPERATIONAL DEFINITION

Effectiveness

It refers to the outcome of Benson's relaxation therapy on blood pressure as elicited by the investigator with the help of sphygmomanometer.

Pregnancy-Induced Hypertension (PIH):

In this study it refers to the mothers with increased blood pressure ($\geq$ 140/90 mmHg) after 20 weeks of gestation.

Benson's Relaxation Therapy

It refers to the systematic and regular patterns, steps and procedures of breathing to lower blood pressure significantly by relaxing the muscles surrounding the constricted blood vessels as proposed by **Dr.Benson,** for a period of 20 minutes, three times a day for five days, which includes.

-Sit quietly in a comfortable position.

-Close eyes.

-Deeply relax all muscles beginning from feet and progressing up to the face and keep them   relaxed.

-Breathe through nose, become aware of the breathing and say the word "*one*" silently while exhaling.

-Continue for 10 to 20 minutes.

-Do not worry and maintain a passive attitude when distracting thoughts occur, try to ignore them and continue to practice.

ASSUMPTIONS

Practice of Benson's relaxation therapy may control blood pressure among mothers with PIH.

NULL HYPOTHESES

NH$_1$: There is no significant difference between pre-test and post-test level of blood pressure among mothers with PIH in Group A and Group B at the level of $p < 0.05$.

NH$_2$: There is no significant difference between pre-test and post- test level of blood pressure among mothers with PIH between Group A and Group B at the level of p<0.05.

NH$_3$: There is no significant association between the mean difference in blood pressure level with selected demographic variables among mothers with PIH in Group A at the level of p<0.05.

DELIMITATION

The study is delimited to a period of 4 weeks.

CONCEPTUAL FRAMEWORK

Kerlinger views theory as a set of interrelated concept that gives systematic view of a phenomenon that is explanatory and predictive in nature.

The present study is aimed to control blood pressure among mothers with PIH by Benson's relaxation therapy, Hence the study was based on Wiedenbachs Helping Art of Clinical Nursing Theory.

Ernestine is a nurse theorist and midwives who proposed a prescriptive theory and described it as a way of conceiving desired situations and the ways to attain it. It is directed towards an explicit goal. Here a prescription is developed based on a central purpose and it is implemented according to the realities of the situation. Ernestine Wiedenbach's theory explains the following.

CENTRAL PURPOSE

It refers to what the investigator want to accomplish or the overall goal towards which a nurse strives, by specifically directing activities towards the clients good.

In this present study the central purpose is to control blood pressure among mothers with PIH in order to prevent complications.

REALITIES

It refers to the physical, physiological, emotional, and spiritual factors that come into play in a situation involving nursing action. The five realities identified by Wiedenbach's are agent, recipient, goal, means, and framework.

AGENT

Agent is a participating nurse who has the personal attributes, capacities, capabilities, commitment and competence to provide nursing care. In the present study the agent is the investigator.

RECIPIENT

Is the patient, who is characterized by the personal attributes, problem, capacities, aspiration and ability to cope with the concern or problems being experienced. In this study the mothers with PIH were the recipient.

GOAL

The goal here is similar to the central purpose which is to control blood pressure by using Benson's relaxation therapy.

MEANS

They are the activities and devices used by the nurses to achieve the goal. In this study the Benson's relaxation therapy is to control blood pressure among mothers with PIH.

FRAMEWORK

It refers to facilities in which nursing is practiced. The frame work in this study has been considered as the setting in which the study has been conducted in Vijaya Hospital, Mambalam Public Health Centre, Chennai.

NURSING PRACTICE

Nursing practice consist of identifying need for help, ministering the needed help and validating that the needed help was met.

IDENTIFICATION

This involves the process of determining the need for help based on the existence of a need. The investigator after obtaining consent from the sample carried out a pre- test blood pressure level and assessed to identify the need for help using sphygmomanometer.

MINISTRATION

It refers to the provision of needed help. In this study the investigator administered Benson's relaxation therapy to control blood pressure among mothers with PIH in Group A and routine measures in Group B.

VALIDATION

It refers to the collection of evidence that shows whether the need have been met as a direct result of the action. Post-test blood pressure level was done followed by compilation and analysis of the collected data to validate if the need for help was met.

OUTLINE OF THE REPORT

Chapter I   : Dealt with introduction, background of the study, need for the study, statement of the problem, objectives, operational definitions, assumptions, null hypotheses, delimitation and conceptual framework.

Chapter II   : Contains the review of literature related to the present study.

Chapter III : Presents the methodology of the study and plan for data analysis.

Chapter IV   : Focuses on data analysis and interpretation.

Chapter V   : Enumerates the discussion and findings of the study.

Chapter VI : Consist of summary, conclusion, implications, recommendations and limitations   of the study.

The study report ends with selected Bibliography and Appendices.

CHAPTER – II

REVIEW OF LITERATURE

The review of Literature is an essential aspect of scientific research. It entails the systematic identification, reflection, critical analysis and reporting of existing information in relation to the problem of interest. The purpose of review of literature is to obtain comprehensive knowledge and in-depth information about the effectiveness of Benson's relaxation therapy.

This chapter deals with the broad view of literature related to effectiveness of Benson's relaxation therapy in control of blood pressure among PIH antenatal mothers.

Section A: Studies related to PIH.

Section B: Studies related to effectiveness of Bensons relaxation therapy.

SECTION A: STUDIES RELATED TO PIH

Gaillard (2011)[52]conducted a population-based prospective study among 8623 women from early pregnancy in Netherlands. The main objective of the study is to find out the association of maternal age with systolic and diastolic blood pressure in each trimester of pregnancy and the risks for gestational hypertensive disorders. The findings showed that older maternal age is associated with lower second and third trimester systolic blood pressure, but higher third trimester diastolic blood pressure, thus maternal age is not consistently associated with the risks of gestational hypertensive disorders.

Bhattacharyya R et al (2011)[44] conducted a cross sectional record based institutional study from 1999-2008 to evaluate the maternal and perinatal outcome of eclamptic mothers in Burdwan Medical College, among 5991 pregnant mothers with eclampsia admitted in the inpatient department of the tertiary care teaching hospital. Case fatality rate, mean induction delivery time & birth-weight, perinatal mortality rates were recorded. Study revealed that the incidence of eclampsia <20 years was 6.97%. Eclampsia was noted primarily in primigravida (7.43%) and unbooked (6.41%) mothers. The overall case fatality rate was 6.05% and eclampsia contributed 27.85% of all maternal deaths during the last two years of the study period. The overall incidence of low birth weight baby was 26.96% and perinatal mortality was 30.33%.

Nanjundan P, (2011)[69] conducted a case-control study in (PGIMER), Chandigarh India between April 2007 and January 2008, to identify the clinical and historical risk factors associated with early onset Pre preeclampsia/eclampsia in women attending a tertiary care hospital, among 100 women with early onset severe pre-eclampsia/eclampsia (≤34 weeks) with mild non-protein uric hypertension (>34 weeks). Multiple logistic regression analysis was used to determine the risk factors for pre-eclampsia. The study findings showed that the risk factors associated with increased risk of early onset of severe pre-eclampsia were history of PIH in a previous pregnancy (71.40%), inadequate antenatal supervision (15.21%); family history of hypertension in one or more 1st-degree relative (8.92%).

Langenveld J et al (2011)[62] conducted a retrospective cohort study among 380 primi mothers who developed early-onset pre-eclampsia in their first pregnancy between January 1996 and December 2004 to evaluate the potential risk factors for recurrence of pre-eclampsia and preterm delivery at two perinatal centers in Netherlands. The clinical parameters were evaluated as predictors for recurrence and logistic regression analysis was used. The study findings showed

that women who had early severe pre-eclampsia in their first pregnancy had 17% risk of recurrence, with a delivery before 34 weeks of gestation

Pal .Gk.et.al (2011)[71] conducted an experimental study to find out whether vagal withdrawal and sympathetic over activity contributes to the genesis of early onset of PIH among 100 normal pregnant women (control group) and 100 pregnant women having risk factors for PIH (study group) at all trimesters, in (JIPMER), India. Sympathovagal imbalance were assessed by spectral analysis of heart rate variability, such as BMI, basal heart rate and BP, the study finding showed that the sympathovagal imbalance in PIH is contributed by both sympathetic over activity and vagal withdrawal and it is mainly due to vagal inhibition.

Bratisl Lek Listy. (2011)[45] conducted a descriptive study to detect the risks groups in pregnant women that later develop (PIH) and risk factors that precede its appearance among 67 preeclamptic and 129 normotensive pregnancies in Macedonia. The study revealed that PIH is most frequently appearing in young primiparas 20-25 yrs and adult multiparas 31-35 yrs.

Golestan.M. (2011)[53] conducted a cross-sectional study to the births that were registered in all the maternity hospital in Yazd a central city of Iran. The study examined the prevalence and risk factors for low birth weight. The low birth weight neonates were compared with neonates whose birth weight exceeded 2,500g. The findings showed that one of the risk factors associated with low birth weight were due to PIH. The study suggested that screening for high risk pregnancies due to maternal diseases can be controlled by making provisions for periodic prenatal care and providing facilities which was essential to reduce the incidence of low birth weight.

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Viny Varghese (April 2011)[102] conducted a descriptive case study among 5 mothers with PIH in antenatal ward at Sri Ramakrishna Hospital, Coimbatore. The main aim of the study was to assess the needs and evaluate the condition of the

mothers with PIH after nursing intervention and to prepare a nursing case module based on the needs and problems of the mothers. Descriptive statistics was used to analyze the data. The study revealed that continuous nursing care with 1:1 ratio which helps to promote the maternal and fetal wellbeing and will reduce the complications in pregnancy.

Shrestha .S. (2010)[79] conducted a descriptive retrospective study on 164 preterm babies admitted in neonatal intensive care units from January 2007 to December 2009 in Dhulikhel hospital, Kathmandu university hospital , the aim of the study was to identify the risk factors associated with preterm birth and the cause of increasing morbidity and mortality rates. The study findings revealed that one of the main risk factor for preterm delivery was **pregnancy induced hypertension (13.1%)** which increased the morbidity and mortality rates.

Pradhan P et al (2010)[76] conducted a retrospective review of the medical records of 89 women with singleton pregnancy who gave birth to still-born infants in ≤ 28 weeks of gestational age from April 1998 to April 2007 to know the prevalence rate and devise preventive measures for still-born infants which accounted more than 50.0% of perinatal death at Nepal Medical College & Teaching Hospital. The study findings showed that major malformations were present in 5(5.6%) of 89 infants including 3 infants with neural tube abnormalities and 16 (19.0%) might been due to an indirect cause for stillbirth.

Jeffery S. (2009)[57] reported that recent epidemiological studies indicate that the effect of preeclampsia may persist long after pregnancy, in both the mother and the offspring has an increased incidence of cardiovascular disease and continued to be a significant source of maternal and fetal morbidity and mortality.

Chadi Yazveck (2009)[47] conducted a cohort study examining the effect of blood lead levels on BP and the incidence of PIH in the second and third trimesters of pregnancy. PIH was diagnosed in 106 subjects. Age, parity, weight gain, alcohol

intake, smoking habits, and calcium supplementation was compared between hypertensive and non-hypertensive mothers. The relationship between blood levels at mid pregnancy and BP suggested that environmental lead exposure may play an etiologic role in PIH.

Liu CM, Cheng PJ (2007)[64] conducted retrospective case control study on maternal complications and prenatal outcomes associated with gestational hypertension and severe preeclampsia in city hospital, China, among 364 women with severe preeclampsia and 249 women with gestational hypertension. The study findings revealed that risks factors associated with severe preeclampsia were lack of prenatal care compared with gestational hypertension, the study suggests that progression of gestational hypertension to severe forms of preeclampsia is associated with subsequent maternal complications.

Sonia Hernandez-Diaz (2007)[81] conducted a descriptive study on the incidence of gestational hypertension among 4762 women with or without infertility treatment at birth centers in USA. The study showed that 8.9% of women had gestational hypertension without infertility treatment and 15.8% of women had gestational hypertension with infertility treatment. The study concluded that each specific infertility procedure or drugs were associated with similar related risks.

Peters R.K. (2007)[74] conducted a descriptive study on 120 patients with PIH who delivered during 2006. The incidence of preeclampsia and eclampsia, per 1000 births were 103 and 19 respectively. Two-thirds of eclamptic women were nulliparous and three-quarters were less than 25 years of age. All patients with eclampsia had convulsions before admission. Although maternal mortality was 4% in patients with preeclampsia and 0% in those with eclampsia, the fetal mortality rate was 32% in preeclamptic and 60% in eclamptic patients.

S. Poornima (2006)[100] conducted an exploratory study to analyze the risk factors associated with preeclampsia among preeclamptic women and normal

pregnant women at selected maternity hospital, Trichi. 60 mothers were selected by purposive sampling. The study findings showed that 81.25% of the preeclamptic women were in low socioeconomic group and 70% risk was in the normal pregnant women.

John Radeleffe (2005)[59] conducted a controlled cohort study to assess the risk of maternal complications after delivery among 1000 mothers with PIH in maternity hospital, USA. The study findings showed that 95% risk of preeclampsia is increased in women with a previous history of preeclampsia, raised BP and the risk is also increased with an interval of 10 years or more since a previous pregnancy, autoimmune disease, renal disease, and chronic hypertension.

Ma. R. et al (2001)[65] conducted a study on the descriptive epidemiology of PIH from 1995 to 2000. The study population was among 36070 pregnant women from 20 weeks of gestational age in Netherlands. The major finding of the study revealed that 15127 cases were identified and overall incidence rate of PIH was 11.1%. Among all cases, mild, moderate, and severe PIH were accounted for 71.4%, 22.3%, and 6.3% respectively. The proportions of PIH cases that occurred in the second trimester, third trimester, and during delivery appeared to be 42%, 34.4%, and 61.4% respectively.

SECTION B: STUDIES RELATED TO EFFECTIVENESS OF BENSONS RELAXATION THERAPY.

B.N. Hemavathi (April 2011)[99] conducted a study to assess the effectiveness of Benson's relaxation therapy in post-cesarean pain among 60 mothers in selected hospital, Trichi. Design used was quasi experimental pretest, post test design with control group. Benson's relaxation therapy using audio tape was given for 8 to 12 minutes thrice daily at an interval of 4 hours for 3 days. Numerical pain assessment scale was used to assess the level of pain. The findings of the study reveal that Benson's relaxation therapy helps in reducing the level of pain among post-cesarean mothers.

Samuelson .M. et al (2010)[78] conducted an explorative study to assess the effectiveness of a comprehensive mind body intervention for medical symptom relief among 331 out patients for a 12 week period in general hospital Boston, USA. The assessment tool used were the medical symptom checklist, health promoting lifestyle profile II and symptom checklist and assessed the physical and psychological symptoms before and after the intervention . The findings showed that a comprehensive mind-body intervention program might be useful as a complementary or adjunct therapy for treatment of medical symptom.

Cassey. A (2009)[46] conducted an experimental study on mind-body practices that elicit the relaxation response (RR) to prevent stress and treat BP among 80 mothers with PIH for a period of 8 weeks were assessed. The analyses revealed there is significant alteration in cellular metabolism, oxidative phosphorylation, reactivity to oxygen and response to oxidative stress in long-term & short-term practitioners of daily relaxation response (RR) practices.

Huddleston .J. (2009)[56] conducted a pre experimental study in 637 patients with hypertension for 3 months. Components of the intervention included smoking cessation, relaxation response training and cognitive /behavioral skills. The findings revealed that men and women improved significantly with respect to medical outcomes (BP, Wt, exercise conducting, frequency of symptoms of chest pain and shortness of breath)and psychological outcomes (general severity index, depression, anxiety and hostility) (p<0.001). This study suggested that provision of preliminary data for a subsequent randomized control trial to test mind/body-based interventions helps to determine the most effective outcomes at an affordable cost.

Lesserman . J. (2008)[63] conducted an experimental study evaluating the efficacy of the relaxation response on the post–operative recovery of 27 LSCS mothers randomly assigned to one of two groups. 13 experimental group patients received educational information and practice eliciting the relaxation response before and after surgery on both physiological and psychological recovery

variables. The study concluded that practicing the relaxation response before and after surgery may reduce BP, tension & anger.

Dusken JA et al (2008)[51] conducted a double blind randomized trial study to assess the stress management among 61 hypertensive patients. The study aimed to assess the relaxation response training versus lifestyle modification on systolic hypertension and medication elimination for a period of 8 weeks in Benson-Henry Institute for Mind Body medicine at Massachusetts general hospital, Boston, USA. Inclusion criteria for the study was SBP 140-159mmHg, DBP >90mmHg and taking at least two antihypertensive medications. The study showed that both the groups had similar reductions in systolic blood pressure but significantly more participants in the relaxation response group eliminated an anti hypertensive medication while maintaining adequate blood pressure control.

Peters. R.K (2007)[73] conducted a 12-week randomized experimental study, investigating the effects of daily relaxation breaks on 126 working nursing mothers with increased BP. Group A was taught a technique for producing the relaxation response. Group B was taught to sit quietly and group C was taught nothing. Group A and group B were asked to take two 15 minutes relaxation breaks daily. The analyses showed that group-A nursing mothers had significant decrease in blood pressure.

Rustin (2007)[77] conducted a randomized control trial on the effects of biofeedback in reducing BP in individuals with mild hypertension among 38 mild hypertensive patients and divided into biofeedback group (n = 20) and Shan-no biofeedback signal group (n = 18) . Results from analysis of 4 variants decreases in SBP and mean BP from baseline at week 12 follow-up were significantly greater in the active biofeedback group compared with the Shan biofeedback group. As the independent variable showed that biofeedback training has effectively lowered SBP and DBP.

Hoffmann .J.W. (2007)[55] conducted an experimental study to assess sympathetic nervous system activity to the subjects who were exposed to stress during monthly antenatal visits. Experimental subjects practiced a technique that elicited the relaxation response. The findings of the study revealed that nor-epinephrine concentrations in plasma, during subsequent visits were significantly higher. These observations were consistent with reduced nor epinephrine after regular elicitation of the relaxation in the experimental group.

Ali K. Katz D.L. (2007)[43] quasi randomized control trials on the effects of mind body therapy (meditation, guided imaginary, and yoga) on SBP and DBP. Participants in these trials were men and non-pregnant women greater than 18 years of age with hypertension. Randomized trials found largely favorable effects of the most popular mind and body therapies on SBP and DBP. Mind and body therapies significantly reduced SBP by a mean of 11.52 mmHg and DBP by 6.83 mmHg. Of these 3, mind and body demonstrated the results of greatest magnitude with mean SBP reduction of 19.07 mmHg and DBP by 13.13 mmHg.

Dusek J.K. et al (2006)[50] conducted a randomized control trial to find out the association between oxygen consumption and nitrous oxide production during relaxation response among 34 Americans. Data gathered by developing a method to quantify the depth of relaxation response using change in nitrous oxide slope measured by percentage in fractional exhaled nitrous oxide. The relaxation response training was given to experimental groups for 8 weeks by audio tapes. Results imply that after relaxation training there was inverse correlation in the relaxation response group (R = 0.41).

Porter.D.(2006)[75] conducted an experimental study at the corporate offices of a manufacturing firm for 12 weeks among 126 volunteers. The study investigated the effects of daily relaxation breaks on five self reported measures of health, performance and well-being. Group A was taught a technique for producing the relaxation response daily for two times. Group B was instructed to sit quietly.

Group C received no instructions. The study revealed that somatic symptoms and performance responded with the practice of the relaxation response than did behavioral symptoms and measures of well being.

Najafian J. (2006)[68] conducted an experimental study to evaluate the efficacy of 2 therapeutic technique namely relaxation and biofeedback assisted relaxation in reducing blood pressure among 56 mildly hypertension men. The participants were randomly divided into 3 groups, relaxation group 1, biofeedback assisted relaxation group 2, and control group 3. The treatment course consisted of 10 sessions. Relaxation was performed in groups 1 and 2 for 15 minutes in each session in the control group, only BP was measured at each session. Mean systolic and diastolic BP decreased after the study group in group 1 and 2. There was a significant difference between group 1 and 3 and between group 2 and 3.the study revealed that relaxation and biofeedback assisted relaxation technique can reduce systolic and diastolic BP.

Dunning (2005)[49] conducted an experimental study to determine the long term effects of relaxation therapy in patients with mildly untreated and uncomplicated hypertension on a 24 hr ambulatory intra-arterial BP . Four week screening period were followed by randomization to receive either relaxation therapy or non-specific counseling for one year. Ambulatory intra-arterial BP was measured before and after treatment. 35 subjects aged 20-60 who were being treated by general practitioners for HT were referred to take part in the study. The study revealed that relaxation therapy was an effective method in lowering 24 hr blood pressure in effective treatment for hypertension.

Mori. H. Saito. S. (2005)[66] conducted a study among 21583 selected Japanese population regarding deep breathing and BP. In experimental group, blood pressure was measured before and after taking 6 deep breathing over a period of 30 seconds and in the control group, BP was measured before and after a second's test in a sitting position without deep breathing. In both groups, systolic

BP, diastolic BP, and pulse rate were measured. Greater BP reductions were found in patient with a higher baseline BP in both the deep breathing and 30-second rest groups.

Joseph C. N .et al (2005)[60] conducted an experimental study to assess the effectiveness of slow breathing to improve arterial baroreflex sensitivity and reduce blood pressure in 46 hypertensive patients in Pavia hospital, Italy. Continuous noninvasive blood pressure, respiratory rate interval, respiration and end- tidal CO2 were monitored in sitting position during spontaneous breathing and controlled breathing at slower (6/min) and faster breathing (15/min) breathing rate. Baroreflex sensitivity was measured by autoregressive spectral analysis and "alpha angle" method. The study findings showed that slow breathing reduces blood pressure and enhances baroreflex sensitivity in hypertensive patients. These effects appear potentially beneficial in the management of hypertension.

CHAPTER – III

RESEARCH METHODOLOGY

This chapter describes the methodology adopted in this study to assess the effectiveness of Benson's relaxation therapy on blood pressure among PIH mothers at selected hospitals, Chennai.

This phase of the study deals with research design, variables, setting of the study, population, sample, criteria for sample selection, sample size, sampling technique, development and description of the tool, content validity, reliability, pilot study, procedure for data collection and plan for data analysis.

RESEARCH DESIGN

The research design used for this study was quasi –experimental non equivalent control group design. According to **Polit and Hungler (2011)[34],** the schematic representation of quasi –experimental (non equivalent control group design) study is shown below:

GROUP	PRETEST O_1	INTERVENTION X	POSTEST O_2
Group A	Assessment of blood pressure level	Benson relaxation therapy for a period of 20 minutes, three time day for 5 days with hospital routine (Tab Nifidepine 10mg bd & Tab Aldomet 200mg od)	Assessment of blood pressure level
Group B	Assessment of blood pressure level	Hospital routine(Tab Nifidepine10mg bd & Tab Aldomet 200mg od)	Assessment of blood pressure level

VARIABLES OF THE STUDY

Independent Variable

Benson's Relaxation Therapy on blood pressure among mothers with PIH.

Dependent Variable

Blood pressure level among mothers with PIH.

Extraneous Variables

Age, Education, Occupation of the mother, Work pattern, Family income per month, Type of family, Area of residence, Family history of Hypertension, Parity, Gestational age, Time of diagnosis, Duration of PIH, On treatment, diet and History of other illness.

SETTING OF THE STUDY

The study was conducted at

Vijaya Hospital, a 200 bedded multispecialty hospital with 30 beds capacity in the antenatal ward.

Mambalam Public Health Centre, a 200 bedded multispecialty hospital with 20 beds capacity in the antenatal ward.

POPULATION

The study population included the mothers with PIH (between 20 to 38 weeks of gestational age) at Vijaya hospital and Mambalam public health centre, Chennai. Approximately 35-50 PIH mothers were admitted per month in both the selected hospitals.

Target Population

The target population for the study was mothers with PIH (between 20 to 38 weeks of gestational age) who were admitted in maternity ward of Vijaya hospital and Mambalam public health centre.

Accessible Population

Accessible population for the study was mothers with PIH (between 20 to 38 weeks of gestational age) who were available during the period of data collection.

SAMPLE

The study samples comprised of mothers with PIH (between 20 to 38 weeks of gestational age) in selected hospital's Chennai, who fulfilled the sample selection criteria.

CRITERIA FOR SAMPLE SELECTION

Inclusive Criteria

1. Antenatal mothers who were between 20 to 38 weeks of gestational age.
2. Antenatal mothers who were diagnosed with pregnancy induced hypertension.
3. Antenatal mothers who were admitted.
4. Antenatal mothers who can understand Tamil or English.

Exclusive Criteria

1. Mothers who were not willing to participate in the study.
2. Antenatal mothers who have visual and hearing impairment.
3. Antenatal mothers who had severe PIH.
4. Antenatal mothers who were on IV antihypertensive medications

SAMPLE SIZE

The sample size consisted of 60 mothers with PIH (30 in Group A & 30 in Group B) who fulfilled the inclusive criteria.

1. Group A samples were selected from Vijaya Hospital, Chennai.
2. Group B samples were selected from Mambalam Public health centre, Chennai.

SAMPLING TECHNIQUE

Non-probability convenient sampling technique was used to select the sample.

DEVELOPMENT AND DESCRIPTION OF TOOL

A structured questionnaire was developed to assess the demographic variables and assessment of biophysical (blood pressure) measurement was done to assess the effectiveness of Benson's relaxation therapy among mothers with PIH. The tool was constructed after extensive review of literature and consultation with Medical and Nursing experts in the field of Obstetrics and Gynecology.

The tool consisted of two sections

Section A

It comprised of demographic variables like Age, Education, Occupation of the mother, Work pattern, Family income per month, Type of family, Area of residence, Family history of Hypertension, Parity, Gestational age, Time of diagnosis, Duration of PIH, On treatment, diet and History of other illness.

Section B

This section consisted of assessment of biophysical measure (blood pressure) by sphygmomanometer and categorizing them according to the following standard guidelines.

WHO/ISH -Blood pressure classification for PIH *(2009)* [93]

Category	Systolic BP (mmHg)	Diastolic BP (mmHg)
Normal	< 130	< 80
Pre-hypertension	130 – 139	80 – 89
Stage I hypertension	140 – 159	90 – 99
Stage II hypertension	≥160	≥100

CONTENT VALIDITY

The content validity of the data collection and intervention tool was obtained from 2 Obstetrician, 1 Psychologist, 1 Psychiatrist, 3 Obstetrical and gynaecological nursing specialist, 1 Certificate in relaxation techniques, 1 Calibration and standardization certificate for BP apparatus and the tool was modified as per the consensus of all experts and research committee, ICCR.

ETHICAL CONSIDERATION

Beneficiary

➢ This study benefited the study participants by practicing Benson's relaxation therapy on blood pressure control along with routine hospital measures.

    i. Study participants were protected from harm, discomfort and exploitation by getting informed written consent.

Respect for human dignity

Clients were given full freedom to decide on participating in the study and those who were interested were selected for the study.

Justice

Samples were selected by using Non-probability convenient sampling technique and at the end of the study, Benson's relaxation therapy was also taught to the mothers with PIH in Group B.

PILOT STUDY

The Pilot study is a trial run, for the major study. The pilot study was planned and conducted after a formal research proposal presentation before the ethical committee, ICCR and faculty of Omayal Achi College of nursing. The pilot study was conducted after receiving the formal permission from the Principal, Omayal Achi College of Nursing. Medical Director, HOD of Maternity Ward and Nursing Superintendent for conducting pilot study in Vijaya Hospital and Sir Ivan Stedford Hospital, Chennai.

The investigator conducted the pilot study by selecting 6 samples that fulfilled the sample selection criteria by non-probability convenient sampling technique. The data collection was done within a given period of one week.

A brief explanation was given on the purpose of the study to the mothers with PIH and consent obtained. Demographic variables were assessed. Pre-test BP was assessed by using a calibrated sphygmomanometer and 3 values were taken as an average in Group A and Group B. Benson's relaxation therapy was given for 20 minutes 3 times per day with hospital routine and observed by the investigator in Group A. In Group B only hospital routines were given. Post-test BP was assessed for 3 times and its average was taken and analyzed in Group A and Group B.

The gathered pilot study data was analyzed using both descriptive and inferential statistics. The findings of the pilot study showed that the calculated 't' value of systolic blood pressure was 18.39 and diastolic blood pressure was 10.46 in the Group A .which suggested that the effectiveness of Benson's relaxation therapy had a high statistically significant difference at $p<0.001$. Thus the findings revealed the feasibility and practicability of the study and after which the plan for actual study was made.

RELIABILITY OF THE TOOL

Reliability denotes the degree of consistency of the tool. The reliability of the tool was established by using inter rater method. The reliability score was r =0.96. It was found to be highly reliable to proceed with the main study.

PROCEDURE FOR DATA COLLECTION

The main study was conducted after obtaining ethical committee clearance from ICCR, formal permission from the Principal of Omayal Achi College of Nursing, and

the Medical Director, HOD of Maternity Ward and Nursing Superintendent for conducting main study in Vijaya Hospital and Mambalam PHC, Chennai.

The medical officers and nursing in-charge were given information about the study. Brief information about self and the purpose of the study was explained to the mothers with PIH. Oral consent was obtained and confidentiality was assured to win their cooperation during data collection.

The investigator selected the samples by using non- probability convenient sampling technique. A total of 60 samples that fulfilled the inclusive criteria were selected for the study, (30 in Group A & 30 in Group B).

Assessment of blood pressure level in Group A and Group B.

Days	Time	Group A	Group B
Day 0	7.15 am 7.30 am 8.00 am 12 noon 4.00 pm	Established rapport Obtained informed consent Assessed demographic variables Assessed Pre-test BP.	Established rapport Obtained informed consent Assessed demographic variables Assessed Pre-test BP.
Day1-5	7.15-7.30 am 7.30 am 8-8.20am 12-12.20pm 4-4.20pm 8.30 am 12.30 pm 4.30 pm	Established rapport Assessed Pre-test BP Benson's relaxation therapy for 20 minutes & Hospital routine** Assessed post- test BP	Established rapport Assessed Pre-test BP Hospital routine ** Assessed post-test BP

Days	Time	Group A	Group B
Day 6	8.00am 12.00pm 4.00pm	Assessed Post-test BP.	Assessed Post-test BP.

Hospital routine**: Tab. Nifidepine 10 mg bd & Tab. Aldomet 200 mg od.

PLAN FOR DATA ANALYSIS

Descriptive Statistics

1. Frequency and percentage distribution was used to analyze the demographic variables of the samples.

2. Mean and standard deviation was used to assess the pre- test and post- test blood pressure level.

Inferential Statistics

1. Paired "t" test was used to compare the pre-test and post -test level of blood pressure.

2. One way ANOVA was used to associate the mean difference of post-test level of blood pressure with selected demographic variables of mothers with PIH in Group A.

CHAPTER – IV

DATA ANALYSIS AND INTERPRETATION

This chapter deals with the analysis and interpretation of data to assess the effectiveness of Benson's relaxation therapy on blood pressure among 60 mothers with PIH.

On the basis of the objectives of the study the data was organized, tabulated and analyzed by using descriptive and inferential statistics. The results are presented under the following sections.

ORGANIZATION OF DATA

Section A: Description of demographic variables of mothers with PIH in Group A and Group B.

Section B: Assessment of pre-test and post-test level of Systolic and diastolic blood pressure in Group A and Group B.

Section C: Assessment of effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH in Group A and Group B.

Section D: Association of mean difference in the post test blood pressure level with selected demographic variables in Group A.

SECTION A: DEMOGRAPHIC VARIABLES OF MOTHERS WITH PIH IN GROUP A AND GROUP B.

Table 1(a)   : Frequency and percentage distribution of demographic variables with respect to age, education, occupation of the mother, work pattern and family income per month.

N=60

Demographic Variables	Group A		Group B	
	No.	%	No.	%
Age in years				
Below 20	0	0.00	0	0.00
21 – 25	1	3.33	6	20.00
26 – 30	12	40.00	13	43.33
31 and above	17	56.67	11	36.67
Education				
Non-literate	0	0.00	0	0.00
Primary education	0	0.00	0	0.00
Secondary education	1	3.33	0	0.00
Higher secondary education	19	63.33	14	46.67
Degree and above	10	33.33	16	53.33
Occupation of the mother				
Working	24	80.00	19	63.33
Not working	6	20.00	11	36.67
Work Pattern				
Housewife	6	20.00	10	33.33
Clerical job	13	43.33	1	3.33
Technical job	6	20.00	8	26.67
Professional job	5	16.67	11	36.67
Family income per month				
Less than 3000	0	0.00	0	0.00
3000 – 5000	8	26.67	0	0.00
5000 – 8000	11	36.67	7	23.33
8000 and above	11	36.67	23	76.67

Table 1(a), shows the frequency and percentage distribution of demographic variables with respect to age, education, occupation of the mother, work pattern and family income per month.

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With regard to the demographic variables of mothers in Group A, majority 17 (56.67%) were in the age group of 31 and above, 19(63.33%) had

completed higher secondary education, 24(80.00%) were working women, 13(43.33%) were in clerical job and 11(36.67%) earns 5000-8000 and above respectively as family income per month.

In Group B majority 13(43.33%) were in the age group of 26-30yrs, 16(53.33%) had completed degree and above, 19 (63.33%) were working women, 11(36.67%) were in professional job and 23(76.67%) earns 8000 and above respectively as family income per month.

Table 1(b): Frequency and percentage distribution of demographic variables with respect to type of family, area of residence, family history of hypertension and parity.

N=60

Demographic Variables	Group A		Group B	
	No.	%	No.	%
Type of family				
Nuclear	23	76.67	22	73.33
Joint	7	23.33	8	26.67
Extended family	0	0.00	0	0.00
Others	0	0.00	0	0.00
Area of residence				
Urban	17	56.67	22	73.33
Suburban	12	40.00	8	26.67
Rural	1	3.33	0	0.00
Family history of hypertension				
Yes	18	60.00	19	63.33
No	12	40.00	11	36.67
If yes, specify				
Father	4	22.22	0	0.00
Mother	14	77.78	19	100.00
Sibling	0	0.00	0	0.00
Father and mother	0	0.00	0	0.00
Father's sibling	0	0.00	0	0.00
Mother's sibling	0	0.00	0	0.00
Parity				
Primi	19	63.33	24	80.00
Multi	11	36.67	6	20.00

Table 1(b) shows frequency and percentage distribution of demographic variables with respect to type of family, area of residence, family history of hypertension and parity.

With regard to the demographic variables of mothers in Group A, majority 23 (76.67%) lives in nuclear family, 17(56.67%) live in urban area. 18(60.00%) had a family history of hypertension, 14(77.78%) had maternal history of hypertension and 19(63.33%) were primi mothers respectively

In Group B majority 22(73.33%) of mothers with PIH lives in a nuclear family and 22(73.33%) live in an urban area, 19(63.33%) had family history of hypertension, 19(100%) had maternal history of hypertension and24 (80.00 %) were primi mothers respectively.

Table 1(c): Frequency and percentage distribution of demographic variables with respect to gestational age, duration of PIH, on treatment, diet and history of any other illness.

N=60

Demographic Variables	Group A		Group B	
	No.	%	No.	%
Gestational age				
20 - 24 weeks	0	0.00	0	0.00
25 - 29 weeks	13	43.33	14	46.67
30 - 34 weeks	14	46.67	16	53.33
35 - 38 weeks	3	10.00	0	0.00
Duration of PIH				
0 - 3 months	30	100.00	30	100.00
3 - 6 months	0	0.00	0	0.00
6 - 9 months	0	0.00	0	0.00
On treatment				
Yes	30	100.00	30	100.00
No	0	0.00	0	0.00
Diet				
Vegetarian	0	0.00	0	0.00
Non-vegetarian	30	100.00	30	100.00
History of any other illness				
Yes	15	50.00	17	56.67
No	15	50.00	13	43.33
If yes, specify				
Diabetes	15	100.00	16	94.12
Asthma	0	0.00	1	5.88
Jaundice	0	0.00	0	0.00
Anemia	0	0.00	0	0.00

Table 1(c) shows the frequency and percentage distribution of demographic variables with respect to gestational age, duration of PIH, on treatment, diet and history of any other illness.

With regard to the demographic variables of the mothers in Group A majority 14 (46.67%) were in the gestational age of 30-34 weeks, 30(100%) of them had the illness from 0-3 months, 30(100%) were on treatment, 30 (100%) were on non- vegetarian diet, 15 (50.00%) had history of other illness, among them 15(100.00%) had diabetes respectively.

In the Group B, majority 16(53.33%) were in the gestational age of 30-34 weeks, 30(100%) of them had the illness from 0-3 months, 30(100%) were on treatment, 30(100%) were on non- vegetarian diet, 17(56.67%) of mothers with PIH have history of other illness, among them majority of 16(94.12%) had diabetes.

SECTION B: **ASSESSMENT OF PRE-TEST AND POST- TEST LEVEL OF SYSTOLIC AND DIASTOLIC BLOOD PRESSURE IN GROUP A.**

Table 2(a) : Frequency and Percentage distribution of pretest and post test level of Systolic and diastolic BP (mmHg) in Group A.

N =60

BLOOD PRESSURE mmHg	SYSTOLIC				DIASTOLIC			
	PRE		POST		PRE		POST	
	No.	%	No.	%	No.	%	No.	%
Normal (<130)	0	0	0	0	1	3.33	16	53.33
Pre hypertension (130 – 139)	0	0	28	93.33	18	60.0	14	46.67
Stage I (140 – 159)	24	80.0	2	6.67	11	36.67	0	0
Stage II (≥160)	6	20.0	0	0	0	0	0	0

Table 2(a) shows the frequency and Percentage distribution of pretest and post test level of Systolic BP (mmHg) and diastolic BP (mmHg) in Group A.

With regard to pretest level of systolic blood pressure in Group A, 24(80.00%) were stage I hypertensive, 6(20.00%) were in stage II hypertension. In the post-test systolic blood pressure 28(93.33%) were pre-hypertensive and 2(6.67%) were in stage I hypertension.

With regard to pretest level of diastolic blood pressure in Group A, 11(36.67%) were stage I hypertensive, 18(60.00%) were in pre- hypertension and (3.33%) had normal blood pressure. In the post test systolic blood pressure 14(46.67%) were pre-hypertensive and 16(53.33%) had normal blood pressure.

Table 2(b): Frequency and Percentage distribution of pretest and post test level of Systolic and diastolic BP (mmHg) in Group B.

N = 60

BLOOD PRESSURE mmHg	SYSTOLIC				DIASTOLIC			
	PRE		POST		PRE		POST	
	No.	%	No.	%	No.	%	No.	%
Normal (<130)	0	0	0	0	0	0	0	0
Pre hypertension (130 – 139)	0	0	0	0	4	13.33	3	10
Stage I (140 – 159)	14	46.67	13	43.33	26	86.67	27	90
Stage II (≥160)	16	53.33	17	56.67	0	0	0	0

Table 2(b) shows the frequency and percentage distribution of pretest and post test level of Systolic BP (mmHg) and diastolic BP (mmHg) in Group B.

With regard to pretest level of systolic blood pressure in Group B, 16(53.33%) were stage II hypertensive, 14(46.67%) was in stage I hypertension. In the post test systolic blood pressure 17(56.67%) were stage II hypertensive and 13(43.33%) were in stage I hypertension.

With regard to pretest level of diastolic blood pressure in Group B, 26(86.67%) were stage I hypertensive, 4(13.33%) were in pre-hypertension. In the post test diastolic blood pressure level, 27(90%) were stage I hypertensive and 3(10%) were in pre-hypertension.

SECTION C: ASSESSMENT OF EFFECTIVENESS OF BENSON'S RELAXATION THERAPY ON BLOOD PRESSURE AMONG MOTHERS WITH PIH IN GROUP A AND GROUP B.

Table 3(a)   :   Comparison of pretest and post test level of Systolic and diastolic Blood Pressure (mmHg) in Group A.

N = 60

Blood Pressure	Pretest		Post Test		Mean Difference	't' value
	Mean	S.D	Mean	S.D		
Systolic	154.80	7.49	129.37	5.42	25.43	t = 15.477*** (S)
Diastolic	97.90	5.81	79.17	4.53	18.73	t = 7.839*** (S)

***p<0.001, S – Significant

Table 3(a) shows the comparison of pretest and post test level of Systolic and diastolic BP (mmHg) among mothers with PIH in Group A.

When comparing the pretest and posttest systolic blood pressure in the pretest, the mean value was 154.80 with S.D 7.49 and in the post test the mean value was 129.37 with S.D 5.42 with the mean difference of 25.43. The calculated 't' value was 15.477 which was greater than the table value and this indicated that there was a high significant difference at p<0.001 level in Group A.

With regard to diastolic blood pressure level in the pretest, the mean value was 97.90 with S.D 5.81 and in the post test the mean value was 79.17 with S.D 4.53 with the mean difference of 18.73. The calculated 't' value was 7.839 which was greater than the table value and this indicated that there was a high significant difference at p<0.001 level in Group A.

Table 3(b): Comparison of pretest and post test level of Systolic and Diastolic Blood Pressure (mmHg) in the Group B.

N = 60

Blood Pressure	Pretest		Post Test		Mean Difference	't' value
	Mean	S.D	Mean	S.D		
Systolic	159.47	10.84	159.43	11.18	0.03	t = 0.062 (N.S)
Diastolic	94.03	3.64	94.57	3.59	0.53	t = 1.532 (N.S)

N.S – Not Significant

Table 3(b) shows the comparison of pretest and post test level of Systolic and diastolic Blood Pressure (mmHg) among mothers with PIH in Group B.

When comparing the pretest and posttest systolic blood pressure in the pretest, the mean value was value was 159.47 with S.D 10.84 and in the post test the mean value was 159.43 with S.D 11.18 with the mean difference of 0.03. The calculated 't' value was 0.062 which showed no statistically significant difference in Group B.

With regard to diastolic blood pressure level in the pretest, the mean value was 94.03 with S.D 3.64. And in the post test the mean value was 94.57 with S.D 3.59 with the mean difference of 0.53. The calculated 't' value was 1.532 which showed no statistically significant difference in Group B.

Table 4(a): Comparison of pretest level of Systolic and diastolic Blood Pressure between Group A and Group B.

N = 60

Blood Pressure	Group A		Group B		Mean Difference	't' value
	Mean	**S.D**	**Mean**	**S.D**		
Systolic	154.80	7.49	159.47	10.84	4.67	t = 1.940 (N.S)
Diastolic	97.90	5.81	94.03	3.64	3.13	t = 1.899 (N.S)

N.S – Not Significant

Table 4(a) shows the comparison of pretest and post test level of Systolic and diastolic BP (mmHg) among mothers with PIH in between Group A and Group B.

When comparing the pretest level of Systolic in between Group A and Group B the mean value was 154.80 with S.D 7.49 and in Group B the mean value was 159.47 with S.D 10.84 with the mean difference of 4.67. The calculated't' value of 1.940 shows no statistically significant difference in the pretest level of Systolic BP.

When comparing the pretest level of diastolic in between Group A and Group B the mean value was 97.90 with S.D 5.81 and in Group B the mean value was 94.03 with S.D 3.64 with the mean difference of 3.13. The calculated't' value of 1.899 shows no statistically significant difference in the pretest level of diastolic BP.

Table 4(b): Comparison of post test level of Systolic and diastolic Blood Pressure between Group A and Group B.

N= 60

Blood Pressure	Group A		Group B		Mean Difference	't' value
	Mean	S.D	Mean	S.D		
Systolic	129.37	5.42	159.43	11.18	30.06	t = 13.252*** (S)
Diastolic	79.17	4.53	94.57	3.59	15.4	t = 14.588*** (S)

***p<0.001, S – Significant

Table 4(b) shows the comparison of post test level of Systolic and diastolic Blood Pressure (mmHg) among mothers with PIH in between Group A and Group B.

When comparing the post test level of Systolic in between Group A and Group B the mean value was 129.37with S.D 5.42 and in Group B the mean value was 159.43 with S.D 11.18 with the mean difference of 30.06. The calculated 't' value of 13.252 shows high significant difference in the post-test level of systolic BP at p<0.001.

With regard to post-test diastolic blood pressure level in Group A, the mean value was 79.17 with S.D 4.53. And in Group B the mean value was 94.57 with S.D 3.59 with the mean difference of 15.4. The calculated't' value of 14.588 shows high significant difference in the post-test level of diastolic BP at p<0.001.

SECTION D: ASSOCIATION OF MEAN DIFFERENCE IN THE LEVEL OF SYSTOLIC BLOOD PRESSURE WITH THE DEMOGRAPHIC VARIABLES IN GROUP A.

The findings revealed that the mean difference in the level of systolic and diastolic blood pressure with selected in Group A had no statistically significant association with selected demographic variables such as Age, education, occupation of the mother, work pattern, family income, type of family, area of residence, family history of hypertension, parity, gestational age, duration of PIH, On treatment, diet, and history of any other illness respectively.

CHAPTER – V

DISCUSSION

The study was conducted to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH.

This chapter deals with the detailed discussion on the findings of the study interpreted from statistical analysis. The findings are discussed in relation to the objectives, need for the study, related literature and conceptual framework. It is presented in line with the objectives of the study.

The first objective was to assess the pre-test and post-test level of blood pressure among mothers with PIH in Group A.

In assessing the pretest systolic blood pressure level in Group A, majority 24(80.00%) were in stage I hypertension, 6(20.00%) were in stage II hypertension.

And in assessing the pretest diastolic blood pressure level 11(36.67%) were in stage I hypertension, 18(60.00%) were pre- hypertensive and (3.33%) had normal blood pressure. This indicates that the blood pressure should be controlled.

In assessing the post-test systolic blood pressure level 28(93.33%) were pre-hypertensive and 2(6.67%) were stage I hypertension, whereas in the post-test diastolic blood pressure level 14(46.67%) were pre-hypertensive and 16(53.33%) had normal blood pressure.

Thus, the majority of mothers with PIH in Group A, who were stage I hypertensive in the pretest had pre-hypertension and normal blood pressure in the post-test, indicating a good control of blood pressure.

In assessing the pretest systolic blood pressure level in Group B majority 16(53.33%) were in stage II hypertension and 14(46.67%) were in stage I hypertension.

In assessing the pretest diastolic blood pressure level 26(86.67%) were in stage I hypertension and 4(13.33%) were pre-hypertensive. This indicates that the blood pressure should be controlled.

In assessing the post-test systolic blood pressure level 17(56.67%) were in stage II hypertension, 13(43.33%) were in stage I hypertension, whereas in the post- test diastolic blood pressure level 27(90%) were in stage I hypertension and 3(10%) were in pre-hypertension.

Thus, the majority of mothers with PIH in Group B who were in stage II hypertension in the pretest were still in stage I and stage II hypertension in the post-test, indicating a poor control of blood pressure.

The above findings are consisted with the finding of the a retrospective study conducted by **Mustafa Adelaja L (2011)**[67] to determine the pattern of obstetric emergencies and its influence on maternal and perinatal outcome at the Olabisi Onabanjo University Teaching Hospital (OOUTH), Sagamu, Nigeria among 1420 total deliveries. During the period, there were 262 obstetric emergencies. One of the most common obstetric complications was **severe pregnancy-induced hypertension/eclampsia**. The study suggests that prevention/effective management of PIH will help to reduce maternal and perinatal mortality.

The second objective was to compare the pre-test and post- test level of blood pressure among mothers with PIH in Group A and Group B.

In Group A the findings revealed that in the pretest systolic blood pressure, the mean value was 154.80 with S.D 7.49 and in the post test the mean value was

129.37 with S.D 5.42 with the mean difference of 25.43. The calculated 't' value was 15.477 which was greater than the table value and this indicated that there was a high significant difference in blood pressure level at p<0.001.

With regard to diastolic blood pressure level in the pretest, the mean value was 97.90 with S.D 5.81 and in the post test the mean value was 79.17 with S.D 4.53 with the mean difference of 18.73. The calculated 't' value was 7.839 which was greater than the table value and this indicated that there was a high significant difference at p<0.001 level which showed the effectiveness of Benson's relaxation therapy in the control of blood pressure.

In group B the findings revealed that in the pretest systolic blood pressure, the mean value was 159.47 with S.D 10.84 and in the post test the mean value was 159.43 with S.D 11.18 with the mean difference of 0.03. The calculated 't' value was 0.062 which showed no statistically significant difference.

With regard to diastolic blood pressure level in the pretest, the mean value was 94.03 with S.D 3.64. And in the post test the mean value was 94.57 with S.D 3.59 with the mean difference of 0.53. The calculated 't' value was 1.532 which showed no statistically significant difference.

Hence the null hypotheses (NH$_1$) stated earlier "that there is no significant difference in the pre-test and post-test level of blood pressure among mothers with PIH in Group A and Group B at the level of p<0.05" was rejected.

The above findings are consistent with the finding of the study conducted by **Thangamani (2006)[82]**, an experimental study to evaluate the effectiveness of Benson's relaxation therapy in reducing BP among PIH mothers for a period of 4 weeks in antenatal ward in selected hospital, Salem, poly clinic and Vijaya hospital. 60 antenatal mothers were selected by purposive sampling. The design

used was time series design. The mean value of systolic SBP was 8.5 and 5.2 in DBP with the calculated 't' value of 7.1 and 13.32 respectively. Thus the results showed that there was a significant reduction in both systolic and diastolic BP among PIH mothers. Thus the findings suggested that Benson's relaxation therapy was effective in reducing BP among mothers with Pregnancy-induced hypertension.

The third objective was to compare the pre-test and post-test level of blood pressure among mothers with PIH between Group A and Group B.

The assessment reveals that when comparing the pretest level of Systolic blood pressure level in between Group A and Group B the mean value was 154.80 with S.D 7.49 and in Group B the mean value was 159.47 with S.D 10.84 with the mean difference of 4.67. The calculated 't' value of 1.940 showed no statistically significant difference.

When comparing the pretest level of diastolic in between Group A and Group B the mean value was 97.90 with S.D 5.81 and in Group B the mean value was 94.03 with S.D 3.64 with the mean difference of 3.13. The calculated 't' value of 1.899 showed no statistically significant difference.

When comparing the post test level of Systolic in between Group A and Group B the mean value was 129.37with S.D 5.42 and in Group B the mean value was 159.43 with S.D 11.18 with the mean difference of 30.06. The calculated 't' value of 13.252 showed high significant difference at p<0.001.

With regard to post-test diastolic blood pressure level in Group A, the mean value was 79.17 with S.D 4.53. And in Group B the mean value was 94.57 with S.D 3.59 with the mean difference of 15.4. The calculated 't' value of 14.588 shows high significant difference in the post-test level of diastolic BP at p<0.001.

Hence the null hypotheses (NH_2) stated earlier that "there is no significant difference in the pre-test and post-test level of blood pressure among mothers with PIH between Group A and Group B at the level of p<0.05" was rejected

The above findings are consisted with the finding of the study conducted by **Kaushik. R.M.et al (2006)[61]** an experimental study on the effects of mental relaxation and slow breathing for 10 minutes each, among 100 patients who were either receiving antihypertensive drugs or were not on medicated. Blood pressure, Respiratory rate and Heart rate were analyzed and compared. The study findings revealed that even a single session of mental relaxation and slow breathing can result in a temporary fall in BP which showed that there was statistically significant fall in SBP of (P<0.005) and DBP of (P<0.01).

The fourth objective was to associate the mean difference in post-test blood pressure level with selected demographic variables among mothers with PIH in Group A.

The association of demographic variables with mean difference in the post-test blood pressure level was done using one way ANOVA.

The data analysis revealed that there was no significant association of the mean difference in post-test blood pressure level with selected demographic variables such as age, education, occupation of the mother, work pattern, family income per month, type of family, area of residence, family history of hypertension, parity, gestational age, duration of PIH, on treatment, diet, history of other illness among mothers with PIH in Group A.

Hence the null hypothesis (NH_3) stated earlier that "there is no significant association between the mean difference in blood pressure level with selected demographic variables among mothers with PIH in Group A at the level of p<0.05" was accepted.

CHAPTER – VI

SUMMARY, CONCLUSION, IMPLICATIONS, RECOMMENDATIONS AND LIMITATION

This chapter presents the summary, conclusion, implications, recommendations and limitation of the study.

SUMMARY

High blood pressure during pregnancy can decrease the amount of blood flow to the placenta, which affects the baby's supply of oxygen and nutrients. This may slow down the baby's growth and increase the risk of preterm delivery and if left unmanaged, this may result in fetal and maternal mortality. Therefore, antenatal mothers should be periodically investigated to rule out abnormal and sustained elevations in blood pressure, which should be managed appropriately in a timely manner to prevent complications arising from it.

Studies have shown that as like pharmacological therapy and other complementary modalities, relaxation techniques go a long way in reducing hypertension and sustaining it at controlled levels chronically.

`Relaxation provides a decrease in sympathetic nervous system allowing the arteries to widen and increases the available oxygen and blood flow to the body tissues and the peripheries.

Thus it has been found through studies that, appropriate prenatal care and proper lifestyle modifications like regular visits to the physician's office for checkups, diet, exercises, and relaxation techniques can help to prevent complications arising out of pregnancy and have proved to be the better key in reducing the risks from pregnancy.

Complementary therapy in nursing is diverse and complex as like other nursing specialties. Keeping this in view, the present study was done to assess the effectiveness of Benson's relaxation therapy on blood pressure control among mothers with PIH in a cost effective way.

The objectives of the study were

1. To assess the pre-test and post test level of blood pressure among mothers with PIH in Group A and Group B.
2. To compare the pre-test and post- test level of blood pressure among mothers with PIH in Group A and Group B.
3. To compare the pre-test and post-test level of blood pressure among mothers with PIH between Group A and Group B.
4. To associate the mean difference in post-test blood pressure level with selected demographic variables among mothers with PIH in Group A.

The study was based on the assumptions that

Practice of Benson's relaxation therapy may control blood pressure among mothers with PIH.

The null hypotheses formulated were

NH$_1$: There is no significant difference between pre-test and post-test level of blood pressure among mothers with PIH in Group A and Group B at the level of $p<0.05$.

NH$_2$: There is no significant difference between pre-test and post- test level of blood pressure among mothers with PIH between Group A and Group B at the level of $p<0.05$.

NH$_3$: There is no significant association between the mean difference in blood pressure level with selected demographic variables among mothers with PIH in Group A at the level of $p<0.05$.

The investigator have done an in depth review of literature which included both theoretical and empirical related studies, conceptual framework, research methodology, statistics and formation of the tool which provided a strong foundation for the study.

The conceptual framework for the study was based on **WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY** which provided a comprehensive framework for the effectiveness of Benson's relaxation therapy in control of blood pressure among mothers with PIH.

The content validity of the data collection and intervention tool were obtained from 4 Medical experts, 1 Psychologist and 3 nursing experts in the field of Obstetrics and Gynaecology.

The reliability of the tool was determined by using inter rater method and the feasibility of the study was analyzed by conducting a pilot study at Sir Ivan Stedeford hospital and Vijaya hospital, Chennai

The reliability score was r =0.96. It was found to be highly reliable to proceed with the main study.

The main study was conducted at selected hospitals, Chennai. Non-probability convenient sampling technique was used and the sample size for the study was 60 mothers with PIH who fulfilled the sample selection criteria, and ethical aspects were maintained throughout the study.

Refined tools were used for data collection. The data collected were analyzed and interpreted based on the objectives and null hypothesis using descriptive and inferential statistics. The findings revealed that there was a significant difference in the level of blood pressure among mothers with PIH after Benson's relaxation therapy.

The major findings of the study revealed that

The analysis revealed that the mean difference in pretest systolic blood pressure was 4.67 and 6.13 in pre-test diastolic blood pressure with the calculated 't' value of 1.940 and 1.899 respectively . The findings revealed that there was no statistically significant difference in the pretest level of systolic and diastolic BP in between Group A and Group B.

The analysis revealed that the mean difference in post-test systolic blood pressure was 30.06 and 15.4 in post-test diastolic blood pressure with the calculated 't' value of 13.252 and 14.588 respectively , which is suggestive of effectiveness of Benson's relaxation therapy between Group A and Group B.

Hence the findings revealed that there was a significant difference in the pre-test and post-test level of blood pressure among mothers with PIH between Group A and Group B.

The analysis also revealed that there was no significant association between the mean difference in post-test blood pressure level with selected demographic variables such as age, education, occupation of the mother, work pattern, family income per month, type of family, area of residence, family history of hypertension, parity, gestational age, duration of PIH, on treatment, diet and history of other illness among mothers with PIH in Group A.

CONCLUSION

The present study assessed the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH. The study findings revealed that there was a significant difference in the blood pressure level and concluded that Benson's relaxation therapy was an effective tool to control blood pressure among mothers with PIH.

IMPLICATIONS

The investigator has drawn the following implications from the study, which is of vital concern in the field of Nursing practice, Nursing Administration, Nursing Education and Nursing Research.

Nursing Practice

The staff nurses should:

➢ Keep in pace with the changing trends so as to provide adequate information and guidance to mothers with PIH mothers in order to prevent complications.

➢ Train the staff nurses to teach Benson's relaxation therapy to the mothers with PIH as a part of their daily routine.

➢ Encourage the use of Benson's relaxation therapy along with other complementary therapies to reduce blood pressure in various settings.

Nursing Education

The nurse educator as a facilitator and expert in the field of nursing education should:

➢ Encourage the students for effective utilization of research based practice in controlling blood pressure.

➢ Encourage and educate the student nurses to gain skills in practicing Benson's relaxation therapy on effective control of blood pressure.

➢ Benson's relaxation therapy can be included as a part of complementary therapies in nursing curriculum.

Nursing Administration

The nurse administrator should be able to:

➢ Ensure that the program is implemented effectively in the hospital and in home setting.

- Formulate information booklet, video show, to teach the clients to control blood pressure through non-pharmacological interventions like Bensons relaxation therapy among PIH mothers.
- Collaborate with governing bodies in formulating policies and employ specially qualified nurses trained in alternative and complementary therapies.

Nursing Research

As a nurse researcher,

- Further studies can be done to assess the practice and effects of Benson's relaxation therapy on blood pressure control among PIH mothers.
- Disseminate the findings through conferences, professional journals which will make application of research findings to be effective.

RECOMMENDATIONS

The study recommends the following for future research

- To incorporate Bensons relaxation therapy along with the drug regimen for controlling blood pressure among PIH mothers in Vijaya hospital and Mambalam PHC.
- To start a separate wing in the public health department to incorporate various non pharmacological interventions like Bensons relaxation therapy as an adjuvant to treat PIH.
- To conduct camps and create awareness among PIH mothers and their family members regarding Benson's relaxation therapy.
- To conduct similar study on a large scale for better generalization.
- To conduct a similar study in different settings
- To conduct as a cohort study to assess the practice among PIH clients
- To conduct similar study to evaluate the effectiveness of Benson's relaxation therapy among antenatal mothers on physiological and psychological wellbeing.

➢ To conduct similar study in clinical setting regarding knowledge and practice of Benson's relaxation therapy on blood pressure level among PIH antenatal mothers.

LIMITATION

The investigator had difficulty to collect related literature review.

APPENDIX – H

DEMOGRAPHIC DATA

1. Age in years

    a. Below 20

    b. 21 -- 25

    c. 26 – 30

    d. 31 and above

2. Education

    a. Non-literate

    b. Primary Education.

    c. Secondary Education.

    d. Higher Secondary Education

    e. Degree and above.

3. Occupation of the mother.

    a. Working Woman.

    b. Not Working Woman

4. Work Pattern

    a. Housewife.

    b. Clerical job.

    c. Technical job.

    d. Professional job

5. Family Income per month.

    a. Less than 3000

    b. 3000 – 5000

    c. 5000 – 8000

    d. 8000 and above

6. **Type of family**

    a. Nuclear.

    b. Joint

    c. Extended family

    d. Others

7. **Area of residence**

    a. Urban

    b. Suburban

    c. Rural

8. **Family History of Hypertension**.

  a. Yes

      a_1) Father.

      a_2) Mother.

      a_3) Sibling.

      a_4) Father and Mother.

      a_5) Father's sibling

      a_6) Mother's sibling

      a_7) others.

  b. No

9. **Parity**

    a. Primi

    b. Multi

    c. Elderly

10. **Gestational Age**

    a. 20 – 24 weeks.

    b. 25 – 29 weeks.

    c. 30 – 34 weeks

11. **Duration of PIH**

    a. 0- 3months

    b. 3-6months

    c. 6-9months

12. **On treatment**

    a. Yes. If yes, specify____

    b. No.

13. **Diet**

    a. Vegetarian

    b. Non-vegetarian

14. **History of any other illness**.

    a. **Yes**.

          a1) Diabetes.

          a2) Asthma.

          a3) Jaundice.

          a4) Anemia.

    b. **No**

OBSERVATION SCHEDULE

S.No.	Pre-test BP (mmHg)		OBSERVATION												Post-test BP (mmHg)	
	Day 0		Day 1		Day 2		Day 3		Day 4		Day5				Day 6	
	SBP	DBP	SBP	DBP	SBP	DBP	SBP	DBP	SBP	DBP	SBP	DBP			SBP	DBP
1																
2																
3																
	AVERAGE OF PRE-TEST														AVERAGE OF POST TEST	
MEAN DIFFERENCE----------------																

WHO/ISH -Blood pressure classification for PIH (2009)

Category	Systolic BP (mmHg)	Diastolic BP (mmHg)
Normal	< 130	< 80
Pre-hypertension	130 – 139	80 – 89
Stage I hypertension	140 – 159	90 – 99
Stage II hypertension	$\geq$160	$\geq$100

APPENDIX – J

CODING FOR DEMOGRAPHIC VARIABLES

1. Age in years
   a. Below 20   1
   b. 21 – 25   2
   c. 26 – 30   3
   d. 31 and above   4
2. Education
   a. Non-literate   1
   b. Primary Education.   2
   c. Secondary Education.   3
   d. Higher Secondary Education 4
   e. Degree and above.   5
3. Occupation of the mother.
   a. Working Woman.   1
   b. Not Working Woman   2
4. Work Pattern
   a. Housewife.   1
   b. Clerical job.   2
   c. Technical job.   3
   d. Professional job   4
5. Family Income per month.
   a. Less than 3000   1
   b. 3000 – 5000   2
   c. 5000 – 8000   3
   d. 8000 and above   4
6. Type of family
   a. Nuclear.   1
   b. Joint   2
   c. Extended family   3
   d. Others   4
7. Area of residence
   a. Urban   1
   b. Suburban   2
   c. Rural   3
8. Family History of Hypertension.

a. Yes   1
  a_1) Father.
  a_2) Mother.
  a_3) Sibling.

a_4) Father and Mother.
a_5) Father's sibling
a_6) Mother's sibling
a_7) others.
b. No   2

9. Parity
     a. Primi   1
     b. Multi   2
     c. Elderly   3

10. Gestational Age
     a. 20 – 24 weeks.   1
     b. 25 – 29 weeks.   2
     c. 30 – 34 weeks   3

11. Duration of PIH
     a. 0- 3months   1
     b. 3-6months   2
     c. 6-9months   3

12. On treatment
     a. Yes. If yes, specify___   1
     b. No.   2

13. Diet
     a. Vegetarian   1
     b. Non-vegetarian   2

14. History of any other illness.
     a. Yes.   1
         a1) Diabetes.
         a2) Asthma.
         a3) Jaundice.
         a4) Anemia.
     b. No   2

APPENDIX – K

STEPS IN THE INTERVENTION TOOL

STEP-1	Sit quietly in a comfortable position.
STEP-2	Close eyes.
STEP-3	Deeply relax all muscles beginning from feet and progressing up to the face and keep them relaxed.
STEP-4	Breathe through nose, become aware of the breathing and say the word "*one*" silently while exhaling.
STEP-5	Continue for 10 to 20 minutes
STEP-6	Do not worry and maintain a passive attitude when distracting thoughts occur, try to ignore them and continue to practice

INTERVENTION PROTOCOL

Days	Time	Group A	Group B
Day 0	7.15 am 7.30 am 8.00 am 12 noon 4.00 pm	Establishing rapport Obtaining informed consent Assessing demographic variables Assessing Pre-test BP.	Establishing rapport Obtaining informed consent Assessing demographic variables Assessing Pre-test BP.
Day 1- 5	7.15-7.30 am 7.30 am 8-8.20am 12-12.20pm 4-4.20pm 8.30 am 12.30 pm 4.30 pm	Establishing rapport Assessing Pre-test BP Benson's relaxation therapy for 20 minutes & Hospital routine** Assessing post- test BP	Establishing rapport Assessing Pre-test BP Hospital routine ** Assessing post-test BP
Day 6	8.00am 12.00pm 4.00pm	Assessing Post-test BP.	Assessing Post-test BP.

Hospital routine**: Tab. Nifidepine 10 mg bd & Tab. Aldomet 200 mg od.

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APPENDIX – C

LETTER SEEKING EXPERT OPINION FOR CONTENT VALIDITY

From

Ms. MINI ABRAHAM
M.Sc. (Nursing) II Year,
Omayal Achi College of Nursing,
Puzhal, Chennai-600066.

To

Respected sir /Madam,

Sub: Requisition for expert opinion and content validity regarding.

I am a M.Sc. (Nursing) II year student of Omayal Achi College of Nursing #45, Ambattur, Puzhal Chennai - 600 066, under Dr .M.G.R. Medical University.

As a partial fulfilment of my M.SC. (Nursing) degree program I am conducting a research study on '**A quasi-experimental study to assess the effectiveness of Bensons relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai 2011.** For the research study I have developed a structured questionnaire and observational tool (biophysical measurement-blood pressure) to assess the effectiveness of the therapy on blood pressure among mother with PIH.

I am sending the tool for content validity for your expert& valuable opinion .I will be very thankful if you return it at the earliest to the undersigned.

Thanking you,

Yours faithfully,

(Mini Abraham)

Enclosures:
1. Statement of the problem & objectives of the study.
2. Certificate of content validity.
3. Intervention tool

LIST OF EXPERTS FOR CONTENT VALIDITY

MEDICAL EXPERTS

1.Dr. Mrs.Susheela MD, MRC, (O & G)

HOD-Obstetrics and gynecology,

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2. **Dr.Mrs.Sandy Jaison MBBS, MD, DNB (O & G)**

Medical Officer,

Obstetrician and Gynecologist,

Sir Ivan Stedford Hospital,

Ambattur, Chennai – 600 053.

3. Dr. M. Malaiappan .M.D. (Psychiatry)

Associate professor in Psychiatry

Madras Medical College

Institute of Mental Health,

Chennai.

4. **Mrs.Kannama.R. M.A., M.Phil (Psychology)**

Department of Psychiatry

Southern Railway Hospital

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NURSING EXPERTS:

1. Dr.Mrs.C.Susila

Professor cum Principal,

Obstetric and Gynecological Nursing,

Billroth College of Nursing,

Maduravoyal, Chennai.

2. Mrs. Rosaline Rachel

   Professor cum Principal,

   Obstetric and Gynecological Nursing,

   Indira College of Nursing,

   Pandur – 631 203.

3. Mrs.Nalini

   Reader,

   Obstetric and Gynecological Nursing,

   Sri Ramachandra College of Nursing,

   Sri Ramachandra University,

    Porur, Chennai – 600 116.

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x

APPENDIX – E

CERTIFICATE OF ENGLISH EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work '**A quasi- experimental study to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai 2011,** done by **Mrs. Mini Abraham**, II year, M.Sc.(Nursing) student of Omayal Achi College of Nursing, Chennai, is edited for English language appropriateness by _____.

Seal with Date: **Signature**

APPENDIX – F

CERTIFICATE OF TAMIL EDITING

TO WHOMSOEVER IT MAY CONCERN

This is to certify that the dissertation work '**A quasi - experimental study to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai 2011,** done by **Ms. Mini Abraham**, M.Sc.(Nursing) II year student of Omayal Achi College of Nursing, Chennai, is edited for Tamil language appropriateness by _____.

Seal with Date: **Signature**

APPENDIX – G

INFORMED CONSENT REQUISITION FORM

Good morning,

I Ms. Mini Abraham, M.sc.(Nursing) II year student from Omayal Achi College of Nursing, Chennai, conducting "**A quasi-experimental study to assess the effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH at selected hospitals, Chennai"**, as a partial fulfilment of the requirement for the degree of M.Sc. Nursing under the Tamil Nadu Dr. M.G.R. Medical University. During the study demographic variables will be collected along with assessment of blood pressure before and after Benson's relaxation therapy for a period of one week.

So, I request you to co-operate with me to conduct this study effectively and successfully. I assure you that the information obtained will be kept confidential.

Thanking you.

INFORMED CONSENT FORM

I understand that I am being asked to participate in a research study conducted by **Ms. Mini Abraham,** Msc (N) student of Omayal Achi College of Nursing. This research study will evaluate **"Effectiveness of Benson's relaxation therapy on blood pressure among mothers with PIH in selected hospitals, Chennai".**

If I agree to participate in the study, I understand that the details regarding my demographic variables will be collected for the study purpose.

I also understand that during the period of the research study, I will be clinically observed with regards to efficacy and results of the study. The collection of data may be recorded and will take place in privacy. No identifying information will be included.

I understand that there are no risks associated with this study and the study data will be kept confidential. However, this information may be used in nursing publication or presentations.

If I need to, I can contact **Ms. Mini Abraham,** M.S.c (N), student of Omayal Achi College of Nursing, #45 Ambattur road, Puzhal, Chennai, at any time during the study.

The study has been explained to me. I have read and understood this consent form, all of my questions have been answered, and I agree to participate. I understand that I will be given a copy of this signed consent form.

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Signature of Participant   Date:

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Signature of Investigator   Date: