

**DISSERTATION ON
“A STUDY TO ASSESS THE EFFECTIVENESS OF
SOAKED LADY’S FINGER WATER IN REDUCING
BLOOD SUGAR LEVEL AMONG ANTENATAL
MOTHERS WITH GESTATIONAL DIABETES
MELLITUS IN ‘INSTITUTE OF OBSTETRICS
AND GYNAECOLOGY AND GOVT. HOSPITAL
FOR WOMEN AND CHILDREN’,CHENNAI”.**

**MSc (NURSING) DEGREE EXAMINATION
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In partial fulfillment of requirements for the degree of

MASTER OF SCIENCE IN NURSING

APRIL 2016

CERTIFICATE

This is to certify that this dissertation titled **“A study to assess the effectiveness of soaked lady’s finger water in reducing blood sugar level among Antenatal mothers with Gestational diabetes mellitus in ‘Institute of Obstetrics and Gynaecology and Govt. hospital for women and children’, Chennai”** is a bonafide work done by Mrs.S.Palaniammal, M.Sc. Nursing II year student, College of Nursing, Madras Medical College, Chennai – 600003 submitted to The Tamil Nadu Dr.M.G.R. Medical University, Chennai in partial fulfillment of the requirements for the award of Degree of Master of Science in Nursing, Branch III, Obstetrics and Gynaecological Nursing, under our guidance and supervision during the academic period from 2015 – 2016.

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“It is glory of God to conceal things but the glory of king is to search thing out”

- Proverb 25:2

God delight in concealing things: scientist delights in inventing things. I thank God for bestowing his blessing upon me, leading and guiding me throughout this period of research.

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Abstract

TITLE: “A study to assess the effectiveness of soaked lady’s finger water in reducing blood sugar level among Antenatal mothers in ‘Institute of Obstetrics and Gynaecology and Govt. Hospital for Women and Children’, Chennai.”

Gestational Diabetes mellitus (GDM) is a condition in which women exhibit high blood glucose levels during pregnancy due to insulin insufficiency or insulin resistance .

Need for the study

When I was posted in Antenatal ward, observed most of the Antenatal mothers with gestational diabetes mellitus were suffering from the complications like pre eclampsia and polyhydromnios. Their babies were also affected with macrosomia and hypoglycaemia. These babies were admitted in newborn intensive care unit. So I had an intention to control the blood sugar level by using lady’s finger which is easily available and can be commonly used. I feel that the use of lady’s finger would be economical and acceptable to the antenatal mothers in reduction of blood sugar and thus I suggested this topic to reduce the effects of Gestational diabetes mellitus on mother and fetus.

Objectives

- To assess the fasting and postprandial bloodglucose level among experimental and control group.
- To compare the effectiveness of lady’s finger water on fasting and postprandial glucose level among experimental and control group.
- To determine the effectiveness of soaked lady’s finger water in reducing blood sugar level among experimental group.

- To associate the level of blood glucose with selected socio demographic and obstetric variables.

Key words: Gestational diabetes, lady's finger, effectiveness.

Methodology :

Research approach : Quantitative research approach.

Data collection period : Four weeks
(from 16.7.2015 to 15.8.2015)

Population : Antenatal mothers with Gestational diabetes mellitus .

Sampling technique : Simple random sampling technique

Study setting : Antenatal ward in 'Institute of Obstetrics and Gynaecology, Chennai.

Study design : True experimental research design.

Data collection procedure

After obtaining permission from concerned authority and informed consent from the samples. Pre- test by fasting and post prandial blood sugar was determined on day one. In this study lady's finger water was prepared by cutting one medium sized lady's finger (10cm) into two halves vertically and soaking in 150 ml of water over night. The gestational diabetic client were instructed to consume this water in empty stomach in the next morning for five consecutive days. The post -test by fasting and post prandial sugar was determined on the seventh day.

Data analysis

Data was analyzed with both descriptive statistical methods such as mean, standard deviation, frequency and inferential statistical methods such as chi square and fisher exact tests and paired 't' test.

Study result

After the administration of soaked lady's finger water, the level got reduced by 17.4% in FBS and 17.9% in PPBS. The paired 't' test p value is 0.001. The findings of the study showed that there is a significant reduction in blood glucose level after the administration of soaked lady's finger water.

Discussion: Hypothesis₁ states that there is significant difference between the pre-test and post-test blood sugar of gestational diabetes mothers in the experimental and control group. Hence the hypothesis was accepted.

Hypothesis₂ states there is significant association of mean blood sugar reading with selected baseline factors like age and weeks of gestation. Hence the hypothesis was accepted.

Recommendations : The similar study can be replicated with larger samples in multicentre study with extended period of time for better generalization.

Conclusion: The investigator thereby concludes that the soaked lady's finger water has reduced the blood sugar level on subjects with Gestational Diabetes Mellitus.

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LIST OF ABBREVIATIONS

ABBREVIATIONS	EXPANSIONS
GDM	Gestational Diabetes Mellitus
χ^2	Chi-square
CI	Confidence interval
p	Probability level
T	Assessment of significance
H	Hypothesis
SD	Standard Deviation
f	Frequency of subjects
SDF	Soluble dietary fiber
AE	Abelmoschus esculentus
ADA	American Diabetes Association
HPL	Human Placental Lactogen
FBS	Fasting blood sugar
PPBS	Postprandial blood sugar

INTRODUCTION

CHAPTER-I

INTRODUCTION

“I am not ill, my pancreas is lazy”

-Health line

Gestational diabetes is a condition in which women without previously diagnosed diabetes exhibit high blood glucose (blood sugar) levels during pregnancy (especially during their third trimester)¹. Gestational diabetes is caused when insulin receptors do not function properly. This is likely due to pregnancy-related factors such as the presence of human placental lactogen that interferes with susceptible insulin receptors. This in turn causes inappropriately elevated blood sugar levels². Gestational diabetes mellitus (GDM) varies worldwide and among different racial and ethnic groups within a country. Variability is partly because of the different criteria and screening regimens used in various countries.

According to a random survey done in 2008, GDM prevalence in India is 16.55% of the total pregnant women population. In USA, it has increased from 2.1% to 4.1% in the period from 1994 to 2002, with significant increase in all racial / ethnic groups, Native Americans, Asians, Hispanics, Africans-American and aboriginal women are at a higher risk than the rest of the population. Gestational diabetes affects 3-10% of pregnancies, depending on the population studied³.

Over 180 million people all over the world have diabetes and will likely to double its number in the year 2030 as the World Health Organization has estimated.

Gestational diabetes generally has few symptoms and it is most commonly diagnosed by screening during pregnancy. Diagnostic tests detect inappropriate high levels of glucose in blood samples⁴.

Screening:

A number of screening and diagnostic tests have been used to look for high levels of glucose in plasma or serum in defined circumstances⁵. One method is a stepwise approach where a suspicious result on a screening test is followed by diagnostic test. Alternatively, a more involved diagnostic test can be used directly at the first antenatal visit for a woman with a high-risk pregnancy. Non challenge glucose test, fasting glucose test, 2hours post prandial (after meal) glucose test, random glucose test are the tests for gestational diabetes.

Table -1.1 Criteria for diagnosis of impaired glucose tolerance and diabetes with 75 gm glucose (American Diabetic Association)⁶

Status	2 hour glucose (mg/dl)	Fasting glucose (mg/dl)
Normal	>140	<100
Impaired glucose tolerance	≥140 and <200	≥100and <126
Diabetes mellitus	≥200	≥126

The oral glucose challenge test is performed between 24–28 weeks for the screening of Gestational Diabetes Mellitus. No previous fasting is required for this screening test. The test involves drinking a solution containing 75 grams of glucose and measuring blood levels 2 hours later⁷.

Gestational Diabetes has the power to transform a happy pregnant woman into an anxious or depressed woman. One of the side effects of the term 'Gestational diabetes' is to transform the interpretation of the results of a test into a disease. The status of disease implies that complications have been identified. It is common place to claim that macrosomia (a big baby) is the main complication. This should be considered an association. It is obvious that the energy requirements of a big baby are not the same as the requirements of a small one. The mother, who must make a bigger effort than others, is labeled as having 'Gestational diabetes'.

The growth-stimulating effects of insulin can lead to excessive growth and a large body (macrosomia). After birth, the high glucose environment disappears, leaving these newborns with ongoing high insulin production and susceptibility to low blood glucose levels (hypoglycemia).

Gestational Diabetes mellitus, the most common metabolic complication of pregnancy, illustrates the interaction between the physiologic changes of pregnancy and the pathology of disease. There is a significant change in the course of diabetes profoundly affects the course of pregnancy and the fetus. As with diabetes mellitus in pregnancy in general, babies born to mothers with untreated gestational diabetes are typically at increased risk of problems such as being large for gestational age (which may lead to delivery complications), low blood sugar, and jaundice. If untreated, it can also cause seizures or stillbirth⁸.

Women with unmanaged gestational diabetes are at increased risk of developing type 2 diabetes mellitus (or, very rarely, latent autoimmune diabetes or Type 1) after pregnancy, as well as having a higher incidence of pre-eclampsia and Caesarean section. Their offspring are prone to developing childhood obesity, with type 2 diabetes later in life⁹.

Pharmacological management:

The patients needs more frequent antenatal supervision with periodic check up of fasting blood glucose level should be less than 95 mg per cent. The control of high blood glucose is done by restriction of diet, exercise with or without insulin. Human insulin therapy should be started if the fasting blood glucose level exceeds 105 mg/dl and 2hours postprandial blood glucose level > 130mg/dl even on diet control⁶.

Diet :2000-2500 K cal/day for normal weight woman and restriction to 1200-1800Kcal/day for over weight woman is recommended⁶.

Non pharmacological management:

Gestational diabetes is a treatable condition and women who have adequate control of glucose levels can effectively decrease these risks. The food plan is often the first recommended target for strategic management of GDM. Most women are able to manage their blood glucose levels with a modified diet and the introduction of moderate exercise¹⁰.

Physical exercise has not been found to have a significant effect of primary prevention of gestational diabetes in randomized controlled trials. It may be effective as tertiary prevention for women who have already developed the condition³.

Okra(lady's finger) has been called "a perfect villager's vegetable" because of its robust nature, dietary fiber, and distinct seed protein balance of both lysine and tryptophan amino acids. The amino acid composition of okra seed protein is comparable to that of soybean and the protein efficiency ratio is higher than that of soybean and the amino acid pattern of the protein renders it an adequate supplement to legume or cereal based diets. Okra seed is known to be rich in high quality protein especially with regards to its content of essential amino acids relative to other plant protein source. The other fraction of Okra is insoluble fiber,

which helps to keep the intestinal tract healthy. Okra is also abundant with several carbohydrates, minerals and vitamins, which plays a vital role in human diet and health. Lady's finger is rich in phenolic compounds with important biological properties like quercetin and flavonol derivatives, catechin oligomers and hydroxycinnamic derivatives.¹¹

Okra (lady's finger) is also known for being high in antioxidants activity. Okra has several potential health beneficial effects on some of the important human diseases like cardiovascular disease, type 2 diabetes, digestive diseases and some cancers. Overall, Okra is an important vegetable crop with a diverse array of nutritional quality and potential health benefits¹².

Okra (*Abelmoschus esculentus*) known in many English speaking countries as lady's finger or gumbo is the flowering plant in mallow family¹³. Low GI Food: The term GI stands for Glycemic Index. All diabetics are advised to have food that have low Glycemic index. Lady's finger has the Glycemic Index of 20. According to medical standards the GI of okra is very low. Diabetes can easily snack on lady's finger recipes to fill their stomach and also control their blood sugar levels. Fights kidney disease. The next step after detection of diabetes is always a kidney condition. It has been seen that persistent high blood sugar levels affect your kidneys very badly. The health benefits of lady's finger include keeping kidney disease away. So have lady's finger to maintain good renal health. Soluble fibers: soluble dietary fibers are good for diabetes because it plays an important part in carbohydrate digestion.

1.1. Need for the study:

Gestational diabetes is untreated or uncontrolled may cause variety of health problems for both the mother and the baby. So it is important that a blood

sugar level to be maintained within the normal range throughout pregnancy. The control of blood sugar can help to ensure healthy pregnancy and a healthy baby. If the mothers take medications for diabetes the baby will be a macrosomic (big baby).

There is a need to prevent the complication of gestational diabetes like macrosomia, hypoglycemia, respiratory distress, , shoulder dystocia and still birth or death among babies and the need to prevent the increased risk of pre-eclampsia and Caesarean section among the antenatal mothers with GDM⁹.

The main purpose of the research is to assess the beneficial outcomes when herbal drugs are taken with exercise, diet and medicines in pharmacodynamic. The various healing approaches and therapies that are not based on conventional western medicine but are used along with conventional medicine to cure the disease which are being broadly branded under the name of complementary equilibrium and is balanced when the body is relaxed and i can cope with the everyday stresses and strains of life much more effectively . Complementary therapies can boost the immune system, help to eliminate toxins, helps to relieve pain , improve circulation, improve sleep patterns, increase energy levels ,induce deep relaxation ,reduce stress and tension, restore balance to the body systems.

Many patients try complementary / alternative medicine for diabetes control . Numerous herbal remedies ,non herbal remedies, and other approaches have been tested, and some seem to have anti diabetic effects. Lady's finger is one of the good herbal remedy for diabetes.

Many of the antenatal mothers have been affected with gestational diabetes mellitus and as lady's finger is easily available ,can be commonly used .The investigator feel that the use of lady's finger would be economical and acceptable to the antenatal mothers in reduction of blood sugar.

When the investigator found so many cases of GDM mothers in Antenatal ward during the postings. Census of GDM cases 765 in 2014 and 585 cases in 2015. To reduce the effects of GDM on fetus the investigator carried out this intervention.

1.2.Statement of the problem:

“A study to assess the effectiveness of soaked lady’s finger water in reducing blood sugar level among Antenatal mothers with Gestational diabetes mellitus in ‘Institute of Obstetrics and Gynaecology and Govt. Hospital for women and Children’, Chennai.”

1.3.Objectives:

- ❖ To assess the fasting and postprandial blood glucose level among the experimental and control group .
- ❖ To compare the effectiveness of lady’s finger water on fasting and post prandial glucose level among experimental and control group.
- ❖ To determine the effectiveness of soaked lady’s finger water in reducing blood sugar level among experimental group.
- ❖ To associate the level of blood glucose with socio demographic variables and obstetric variables.

1.4.Operational definitions:

1.Effectiveness refers to determining the extent to which lady's finger intake has achieved the desired effect by significantly reducing the blood sugar of gestational diabetes mothers.

2.Gestational diabetes Mellitus is a condition in which women without previously diagnosed diabetes exhibit high blood glucose (blood sugar) levels during pregnancy (especially after 20th week of pregnancy).

3.Lady's finger is a kind of vegetable which is sown in topical countries and it is named as okra in English speaking countries. The scientific name of lady's finger is *abelmoscusescluentus*. In this study lady's finger water will be consumed by the client in early morning before breakfast for five consecutive days after the estimation of fasting and postprandial sugar monitoring with glucometer.

Per 100 grams of wet lady's finger provides¹⁴:

- K calories- 77
- Water -81.6 g
- Protein -3.2 g (16% protein on a dry basis)
- Carbohydrate- 12.5 g
- Fiber- 4.1 g (21% fiber on dry basis)
- Calcium -80.0 mg
- Iron -1.3 mg
- Thiamin- 0.02 mg
- Riboflavin- 0.02mg

4. Blood sugar is the concentration of glucose in the blood.

1.5. Assumptions:

The study assumes that lady's finger is an accepted mode of intervention for control of blood sugar level among mothers with gestational diabetes.

1.6. Hypothesis:

H1: There may be significant difference between the pre-test and post-test blood sugar of gestational diabetes mothers in the experimental and control group after the administration of soaked lady's finger water.

H2: There may be significant association of the mean blood sugar reading with selected baseline factors like age, sex, occupation, nature of work, type of family, type of food, weeks of gestation and family history.

1.7. Delimitations:

- ❖ This study will be delimited to the subjects who are hospitalized in antenatal ward at IOG in Chennai.
- ❖ Duration of the study four weeks only with a sample of 30 for control group and experimental group each.

**REVIEW
OF
LITERATURE**

CHAPTER-II

REVIEW OF LITERATURE

The purpose of Review of Literature is the identification, selection, critical analysis and reporting of existing information on the problem chosen for the study.

Review of literature helps to know what is already known and helps in developing a broad conceptual content in to which the research problem will fit in. Main goal is to develop a sound study that will contribute to further knowledge in development of nursing theory, education, practice and research.

2.1 Review of literature related to the study:

Section-I Literatures related to Gestational Diabetes mellitus.

Section-II Literatures related to benefits of soaked lady's finger water.

Section-III Literatures related to the effectiveness of lady's finger in control of blood sugar level.

Section -I Literatures related to Gestational diabetes mellitus

Jenifer .C. Dempseys-1 et al., (2003) conducted a prospective study on Gestational diabetes mellitus risk in relation to maternal recreational physical activity before and during Pregnancy at department of Epidemiology, University of Washington School of Public Health and Community Medicine, Seattle, U.S. Physical activity has been associated with a reduced risk of gestational diabetes mellitus, but inferences have

been hampered by recall and selection bias. The authors examined the relation between recreational physical activity before and during pregnancy and risk of gestational diabetes mellitus in a prospective cohort study.. Physical activity during pregnancy was also associated with reductions in gestational diabetes mellitus risk. Women who engaged in physical activity experienced a 69% reduced risk (RR = 0.31, 95% CI: 0.12, 0.79). Findings suggest that efforts to increase maternal physical activity may contribute to substantial reductions in Gestational Diabetes Mellitus risk.¹⁵

Susan Y. chu. et.al, (2007) conducted a study on maternal obesity and risk of Gestational Diabetes at Institute for Clinical Research and Health Policy Studies, Tufts-New England Medical Center, Boston, Massachusetts . Cohort -designed study and qualitative research approach was used. Gestational diabetes mellitus (GDM), or glucose intolerance that begins or is first recognized during pregnancy, affects 7% of pregnancies, representing >200,000 cases annually in the U.S. The risk of GDM is higher among women who are obese, and the recent dramatic increase in obesity prevalence in the U.S. Mirrors a worrisome rise in the prevalence of GDM . Future individual health and societal medical costs could be substantial as obesity and GDM not only increase the risk of adverse pregnancy and infant outcomes but also are associated with a higher risk of developing type 2 diabetes later in life in both the mother and child.¹⁶

Hillier TA.et.al,(2008) conducted the randomized controlled trial on screening for gestational diabetes mellitus at National Institute of health and preventive task force,Bethesela in U.S.this study was aimed to review the evidence about the benefits and harms of screening for GDM. The findings of the study shown that gestational diabetes treatment after 24 weeks improves some maternal and neonatal outcome. Evidence is even more sparse for screening before 24 weeks of gestation.¹⁷

Claire.L.Meek.et al.,(2015) conducted the study on diagnosis of Gestational diabetes mellitus at Gambridge University hospitals in U.K. Data from 25,543 consecutive singleton live births (2004-2008) were obtained retrospectively from hospital records. Women were screened with random plasma glucose and 50 gm glucose challenge test.(GCT-26-28 weeks). The IADPSG(Inter national Association of the Diabetes and pregnancy study groups) criteria identify women at substantial risk of complications who would not be identified by the NICE(National Institute for Health Care Excellence) 2015 criteria¹⁸.

Robert .G.Moses (2009) conducted the prospective study on dietary risk factors for gestational diabetes mellitus at Dr.Seshaiah's diabetic care center ,periyapalayam in Chennai. He conducted the epidemiological study that generate the hypothesis for further study. In this context the both young and middle aged women , a habituated diet that is high in fiber has an inverse association with development of typeII diabetes because dietary fiber is found only in plant foods closely associated with starch and naturally occurring sugar. Findings imply that low carbohydrate diets are not likely to be protective dietary glycemic load are also predictive of type II diabetes mellitus.¹⁹

Seshiah .v . et al.,(2008) conducted a community based study on prevalence of Gestational diabetes mellitus in south india, Tamil Nadu at diabetic care and research Institute ,in Chennai. The study results show that the prevalence of gestational diabetes in the urban areas 739 women among 4015,588 in semiurban among 3960,392 women among 3945.²⁰

Michel .J.Farios. et. al., (2009) conducted a study on Gestational diabetes: risk of recurrence in subsequent pregnancies. They sought to

examine the recurrence risk of gestational diabetes mellitus (GDM) in a subsequent pregnancy and determine whether recurrence risk is modified by race/ethnicity. They used the Kaiser Permanente Southern California longitudinally linked records (1991-2008). Hispanics and Asian/Pacific Islanders have higher risks of recurrence. The study concluded that pregnancy complicated by GDM is at increased risk for subsequent GDM. The magnitude of risk increases with the number of prior episodes of GDM. These recurrence risks also showed heterogeneity by race-ethnicity.²¹

Getahun. D.et.al., (2010) conducted a study on Gestational diabetes mellitus (GDM) is an important and increasing health problem presented at the 137th Annual Meeting of the American Public Health Association, Philadelphia. This study aims to investigate and explain the marked variation in reported GDM prevalence among Australian Indigenous women. They searched five databases to August 2010 for studies of GDM prevalence. Synthesis of within-study findings showed higher age-adjusted prevalence of GDM in Indigenous versus non-Indigenous women; Indigenous women have greater increases in prevalence with maternal age; and non-Indigenous women appear to have a steeper increase in GDM prevalence over time²².

Rajesh Rajput.et al.,(2011) conducted a community based study on prevalence of GDM and associated risk factors at a tertiary care hospital in Haryana. The prevalence of Gestational diabetes was found to be 7.1% in a tertiary care hospital in Haryana. Appropriate interventions are needed for control and risk modification²³.

Judith. GM.Jelsma (2013) conducted the randomized control trial vit.D and life style interventions for Gestational diabetes mellitus

prevention at Uropeon multi centered hospital . Factorial research design was used to conduct the study.The results revealed the preventive measures against the development of Gestational diabetes mellitus in over weight and obsess women and increased effects of Vitamin D on several pregnancy outcomes²⁴ .

Sree lakshmi.PR.et al.,(2015) conducted the retrospective study on maternal and neonatal outcome of Gestational diabetes mellitus. A retrospective cohort study from southern India. The major outcomes included termination of pregnancy by caesarean section ,long term progression to type II diabetes ,inborn nursery admissions and increased neonatal birth weight . The conclusion of the study was the Gestational diabetes can result in significant fetomaternal outcomes. So better facilities are needed to manage gestational diabetes mellitus²⁵ .

Bhatt AA.et al.,(2015) conducted the community survey on Gestational diabetes prevalence in rural population of Maharashtra at Western India . A total number of 989 women participated in the study out of which 94 were diagnosed as Gestational diabetes . The results suggested the need for implementing health programs to diagnose and treat Gestational diabetes in that population²⁶ .

Balaji .et al.,(2014) conducted the cohort study that includes pregnant women attending services for GDM testing at three clinics in greater Chennai, including an urban private hospital setting, a semi-urban government hospital setting and a rural government hospital setting. It was previously reported that the prevalence of GDM using the adapted WHO 1999 guideline in these areas ranged from around 10% to 18% . This unique study will provide important data to investigate the role of various risk factors for GDM. It is also expected to shed light on the role of various

biochemical, clinical and social factors on adverse pregnancy outcomes, including macrosomia. Finally, it provided much needed details pertaining to the long-term outcomes in both women with GDM and their offsprings²⁷.

Shelley Macaulay.et al.,(2014) conducted the study on a systematic review on Gestational diabetes mellitus in Africa. Three electronic databases were searched without language restrictions; PubMed, Scopus and the Cochrane Library. Thirty-one search terms were searched. Eligible articles defined GDM, stated what GDM screening approaches were employed and reported GDM prevalence. The study findings revealed six countries, equating to 11% of the African continent, were represented in this systematic review. This indicates how little is known about GDM in Africa and highlights the need for further research. Considering the increasing public health burden of obesity and type 2 diabetes, it is essential that the extent of GDM is understood in Africa to allow for effective intervention programmes²⁸.

Section –II Literatures related to the benefits of soaked lady’s finger water

Kahlonet al., (2007) conducted the study on glucose, insulin, and non-esterified fatty acid responses to ladies finger and pointed guard in type 2 diabetes mellitus. Glycaemic index (GI) and insulin responses of lady’s finger (*abelmoschusculentus*) and pointed guard from Bangladeshi origin were investigated to help in creating a better food exchange table for diabetic patients. Ten diabetic subjects, under a cross-over design, consumed equicarbohydrate amount (25 gram of total carbohydrate) of the vegetables and white bread with a run in period of seven days between the consecutive items.. This study results shown that blood sugar in type 2 DM patients after consuming lady’s finger was significantly lower when

compared with white bread and pointed guard. This study shows that lady's finger has a hypoglycemic effect.²⁹

Habtamu Fekadu Gemedet al(2015) conducted a study on Nutritional quality and health benefits of okra (*Abelmoschus esculentus*). Okra (*Abelmoschus esculentus*) is an economically important vegetable crop grown in tropical and subtropical parts of the world. This paper was aimed to review nutritional quality and potential health benefits of edible parts of Okra. Okra is a multipurpose crop due to its various uses of the fresh leaves, buds, flowers, pods, stems and seeds. Okra immature fruits, which are consumed as vegetables, can be used in salads, soups and stews, fresh or dried, fried or boiled. It offers mucilaginous consistency after cooking. Often the extract obtained from the fruit is added to different recipes like stews and sauces to increase the consistency. Okra mucilage has medicinal applications when used as a plasma replacement or blood volume expander. The mucilage of okra binds cholesterol and bile acid carrying toxins dumped into it by the liver. Okra seeds are a potential source of oil, with concentrations varying from 20% to 40%, which consists of linoleic acid up to 47.4%¹¹.

Subrahmanyam. et. al.,(2011) conducted a study in Vishwabharthi College of Pharmaceutical Sciences Perecharla, Guntur, Andhra Pradesh in India. The anti diabetic activity of *abelmoschus esculentus*(lady's finger)extract was observed in rabbits (2.5 kgs).Artificial diabetic nature was induced in rabbits by injecting aloxan. Qualitative research approach was used and the research design –True experimental design. The standard drug metformine 1mg/ml and *abelmoschus esculentus* 1mg/ml were dissolved in saline water and given orally. The blood glucose level of rabbits was noted at regular intervals of

time. A gradual decrease in the blood glucose levels was observed by regular feeding of “okra” *abelmoschus esculentus*(lady’s finger) fruit extract for about ten days. Conclusion of the study is okra a natural product and it has antidiabetic activity so the usage of the soaked okra water of okra is not harmful to human health. In viva condition experiments in rabbits shown a good result on anti diabetic activity. Experiment given an preliminary information on this activity³⁰.

Manisha chandlia (2012) conducted the study on the effects of increasing the intake of dietary fiber on Glycemic control in patients with type 2 diabetes mellitus, In a randomized cross over study,they assigned 13 patients with type 2 diabetes to follow two diet,each for six weeks ,a diet containing moderate amount of fiber (total 24gms,8gms of soluble fiber and 16 gm of insulin) as recommended by the American diabetes association (ADA) and a high fiber, both diet ,prepared in research kitchen had some macro nutrient and energy content. We compared two diets on glycemic control and plasma lipid concentration.the high fiber diet reduce plasma cholesterol concentration by 6.7% . A high intake of dietary fiber particularly of soluble type ,above the level of recommended by the ADA,improves the glycemic contol, decreases hyper insulineamia and 1.73 lowers plasma concentration in patients with type2 diabetes mellitus³¹.

SectionIII; Literatures related to the effectiveness of lady’s finger in control of blood sugar level.

Kwok.k et al., (2001) conducted the experimental study on the effects of viscous soluble dietary fibres of *Abelmoschus esculentus* L (Lady’s finger) in lowering intestinal glucose absorption at research center of food sciences and technology,Jian university ,Guangzhou in China. They found out that there was a substantial reductions of diffusion of glucose

from water soluble portion of the pods of *Abelmoschus esculentus* L and Na-Carboxy methylcellulose (Na-CMC) and viscous soluble dietary fiber (VSDF) of the fruits of *Abelmoschus esculentus* L on intestinal glucose absorption using in vitro model. Diffusion systems were observed compared to control in a concentration-dependent manner ($P < 0.05$) which implicates a possible potential role of viscous soluble dietary fiber (VSDF) of fruits of *Abelmoschus esculentus* L in lowering postprandial serum glucose³².

Mrs.S. Sarika Davis (2009) conducted a study on effectiveness of Lady's finger Juice in the Control of Blood Sugar Among clients with diabetes. Diabetes Mellitus is a multi-system disorder characterized by abnormal insulin production, impaired insulin utilization, or both. In India, the increase in type 2 diabetes was estimated to be 58%, from 51 million people in 2010 to 87 million in 2030. This study aims to assess the effectiveness of lady's finger juice in the control of blood sugar among diabetic mellitus. The study was conducted in selected three areas under A.J Urban Health Centre, Mangalore. Population: Diabetic clients aged 45-60 years residing in selected areas of A.J Urban Health Centre, Mangalore. Quasi experimental research approach with purposive sampling technique was used to conduct the study. This shows the decline in the mean FBS value in the experimental group due to the administration of lady's finger juice.³³

Indha.Md.Amin. et.al. (2011) conducted a molecular study on hypoglycemic effects in response to *Abelmoschus esculentus* (lady's finger) at University Technology MARA (UiTM) Malaysia. In streptozotocin-induced diabetic rats, investigator suggested that extracts from okra could be developed as a prospective phytomedicinal plant against diabetes mellitus. The findings of the expected results from this

experiment might be provide indications of the changes in gene expression that may reveal underlying mechanism of diabetic pathophysiology, suggesting new potential target for drug discovery lipid profile level also have normalized. The results have shown that by administration of okra extracts to diabetic rats, there was a significant reduction in blood glucose level³⁴.

Sabitha.V.et al.,(2012) conducted the true experimental study on alpha –glucosidase and alpha-amylase enzyme inhibitory effects in aqueous extracts of ABELMOSCUS ESCLUENTUS (lady’s finger) in streptocin induced diabetic rats at karunya university Coimbatore, Tamil Nadu in India. This study was conducted to provide an evidence for anti diabetic activity through potential inhibition of alpha-glucosidase and alpha-amylase enzymes using the aqueous extracts of Abelmoscusescluentus(lady’s finger) . The powdered peel and seed were used for preparing the aqueous extract .They concludes a appreciable alpha-glucosidas and alpha-amylase inhibitory effect in a concentration – dependent manner and confirmed the hypoglycemic effect in the aqueous extracts of A.escluentus(lady’s finger)³⁵.

John Ray T. Perez (2013) conducted a exploratory investigation on the hypoglycemic effect of Abelmoschus Esculentus in mice at Medina College of medical technology, Ozamiz City, Philippines .Results indicated that the extract from Abelmoschus esculentus (EA)/okra(lady’s finger) has hypoglycemic effect and no observable changes in behavior are noticed to the mice. It is recommended to replicate the study with more number of mice and longer observation period.³⁶

2.2 Conceptual framework:

Conceptual framework is a group of concepts and a set of proportion that spells out the relationship between them affect the nursing action. The five realities identified by Wiedenbach's theory . Conceptual framework deals with the abstractions,(concepts) that are assembled by virtue of their relevance to a common theme. Conceptual frame work plays several interrelated roles in the progress of science. It serves as a spring board for the generation of research hypothesis and can provide an important concept for scientific research. The conceptual framework facilitates communication and provides systematic approach to nursing research, education and communication.

Modified Wiedenbach's helping art of clinical nursing theory.

The study is based on the concept that soaked ladies finger water reduces the absorption of intestinal glucose among antenatal mothers with gestational diabetes.. The investigator adopted the Wiedenbach's Helping Art of Clinical Nursing Theory (1964) as a base for developing the conceptual framework. This theory directs on action towards an explicit goal.

It has 3 factors

- 1) Central purpose
- 2) Prescription
- 3) Realities³⁷

1. Central Purpose

It refers to what the nurse wants to accomplish. It is the overall goal towards which a nurse strives. In this study the main central purpose is to assess the effectiveness of soaked lady's finger water in reducing blood sugar level among antenatal mothers with gestational diabetes.

2. Prescriptions

It refers to plan a care for a patient. It will specify the nature of action that will fulfill the Nurses' central purpose. In this study the investigator plans to assess the blood sugar level in the control group and experimental group among antenatal mothers with gestational diabetes .From the next day soaked lady's finger water is orally administered to antenatal mothers with gestational diabetes in the

empty stomach to the experimental group upto fifth day and assess the blood sugar level of the clients in the experimental group and the control group on the 7th day.

3. Realities

It refers to the physical, physiological, emotional and spiritual factors that are agent, recipient, goal, means and activities and framework.

The conceptualization of nursing practice according to this theory consists of three steps as follows:

Step-1: Identifying the Need for Help

Step-2: Ministering the needed Help

Step-3: Validating the Help

Step-I : Identifying the need for Help

This step involves determining the need for help. The patients selected are already diagnosed as antenatal mothers with gestational diabetes and with the blood sugar level of >120mg and <180mg for experimental group and for control group.

Step-2: Ministering the needed Help

This step involves provision of required help for identified need. It has two components.

i) Prescription

In this study, the investigator administers lady's finger water in experimental group of antenatal mothers with gestational diabetes from day 2 to day 5.

ii) Realities

In this study, the five realities identified by Wiedenbach's theory are

- a. Agent-** Investigator.
- b. Recipient-** Patients drinking lady's finger water.

- c. **Goal-** Reducing blood sugar level among antenatal mothers with gestational diabetes.

d.Means

- **Experimental group-** To assess the effectiveness of soaked lady's finger water in reducing blood sugar level among antenatal mothers with gestational diabetes.
- **Control group-** To assess the blood sugar level of antenatal mothers with gestational diabetes without the intervention.

To assess both the groups for the control of blood sugar level on the day 1 and the day 7.

Frame work: Antenatal ward at IOG.

Step-3: Validating the Help:

The nurse validates the ministered help. It is accomplished by means of post test assessment of the blood sugar level on the day 7 after rendering the selected nursing intervention that is the oral administration of soaked lady's finger water among antenatal mothers with gestational diabetes .Then the effectiveness of the intervention is compared between the experimental and control groups.

CENTRAL PURPOSE – TO CONTROL BLOOD SUGAR LEVEL AMONG ANTENATAL MOTHERS WITH GESTATIONAL DIABETES MELLITUS

Identifying the need for help

Ministering the need for help

Validating the need for help was met

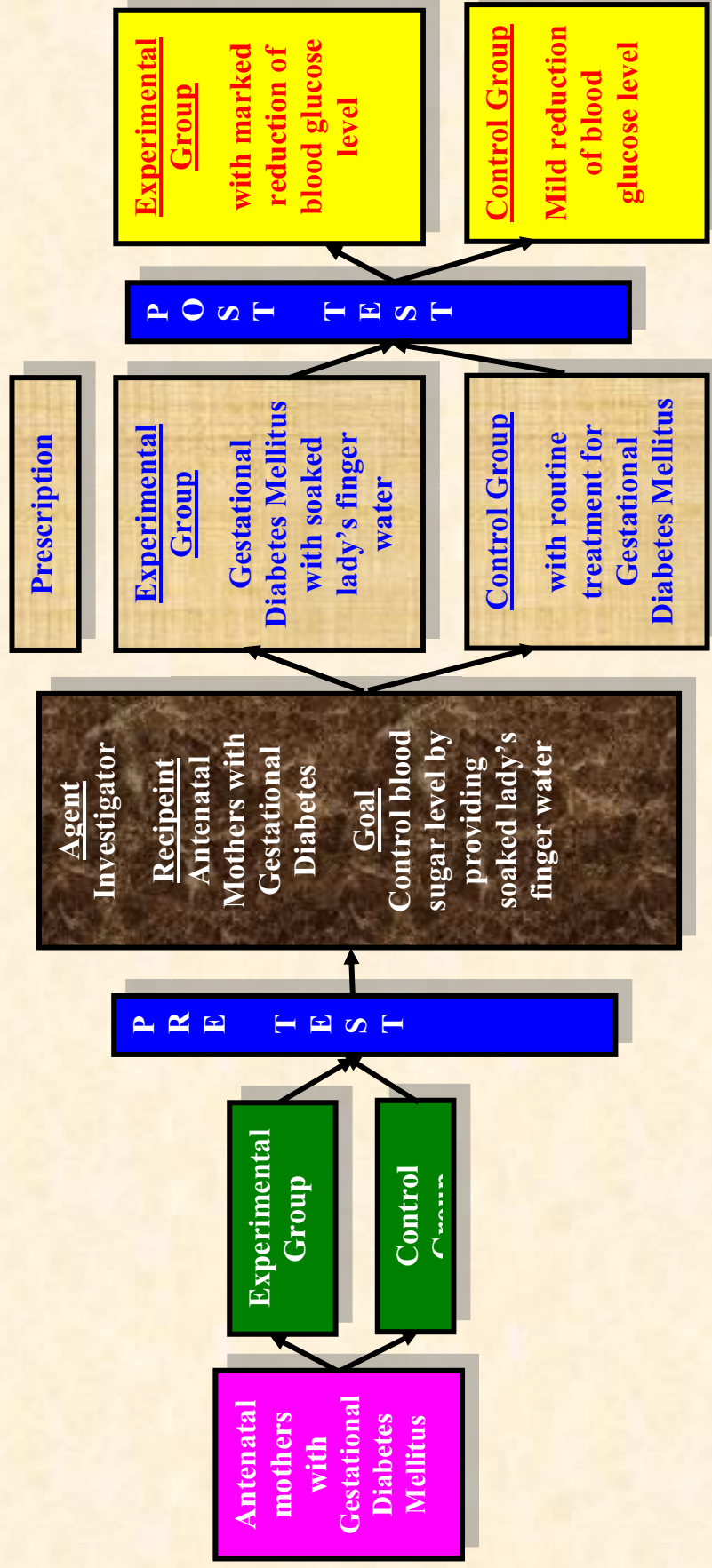


FIG-2.2.1: MODIFIED WIEDENBACH'S HELPING ART OF CLINICAL NURSING THEORY

RESEARCH METHODOLOGY

CHAPTER-III

METHODOLOGY

This chapter deals with the methodology to assess the effectiveness of soaked lady's finger water among antenatal mothers with gestational diabetes mellitus admitted at IOG.

Research methodology includes the research approach, duration of the study, setting, population, sample, criteria for sample selection, sampling technique, sample size, development and description of the tool, scoring procedures, content validity, pilot study, reliability and procedure for data collection and plan for statistical analysis. ↓

3.1 Research approach:

A quantitative research approach was adopted in this study as the investigation was aimed at evaluating the effectiveness of soaked lady's finger water on blood sugar level among the subjects with Gestational diabetes Mellitus.

3.2 Data collection period:

The study was conducted from 15.7.15 to 15.8.15(four weeks).

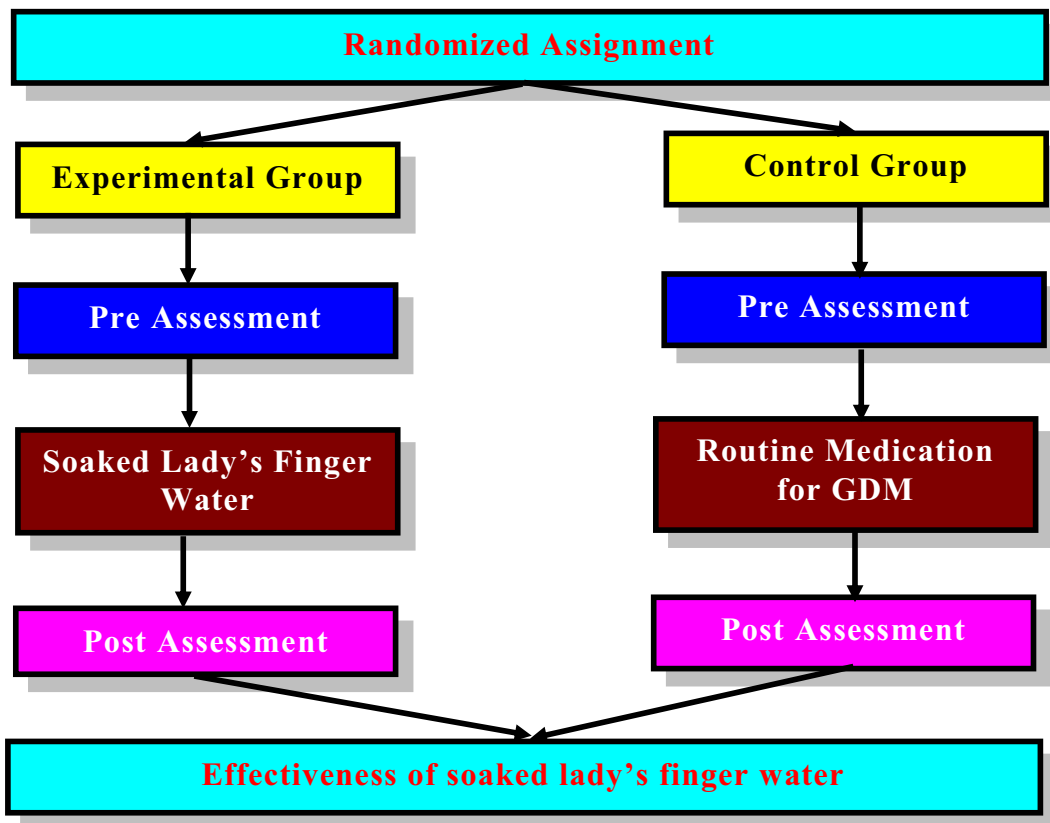
3.3 Study setting:

The study was conducted at the antenatal ward at the Institute of Obstetrics and Gynaecology in Chennai. It is a 1075 bedded maternity hospital, tertiary care center and referral center. The Institute was inveiled on 26th January 1844. Institute of obstetric and gynaecology has departments such as genetics, endocrinology, dentistry, family planning services and neonatal intensive care service and human milk bank for rendering services and it also provides comprehensive care for entire Tamil Nadu and neighbouring states.

3.4 Study design:

True experimental design was used to assess the effectiveness of soaked lady's finger water on blood glucose control among Antenatal mothers with Gestational Diabetes mellitus.

Figure:3.4.1



3.5 Study population:

Antenatal mothers who were diagnosed as gestational diabetes mellitus at IOG, Chennai.

3.6 Sample size:

The study sample comprises of Antenatal mothers with gestational diabetes mellitus at the antenatal ward at IOG in Chennai who fulfill the inclusive criteria. The sample size for the study was 60. Out of which 30 samples who consumed soaked lady's finger water belong to the experimental group and 30 samples who did not consume soaked lady's finger water belong to the control group.

3.7 Sample selection criterion:

3.7.1 Inclusion criteria:

- 1) Antenatal mothers who were diagnosed as gestational diabetes.
- 2) Antenatal mothers with gestational diabetes who were willing to participate in the study.
- 3) Antenatal mothers who were admitted in Antenatal ward.
- 4) Antenatal mothers who were understand English and Tamil.

3.7.2 Exclusion Criteria:

- 1) Antenatal mothers whose postprandial blood sugar level was less than 126 mg/dl.
- 2) Antenatal mothers who were not willing to participate in this study.
- 3) Antenatal mothers whose blood sugar level was >180 mg/ dl.
- 4) Antenatal mothers having other complications such as cardiac, respiratory or pregnancy induced hypertension.

3.8 Sampling technique:

Probability sampling Technique- Simple random sampling, subjects were randomly assigned to experimental and control group.

3.9 Research variables:

Independent Variable

Administering of soaked lady's finger water.

Dependent Variable

Antenatal mothers with gestational diabetes mellitus.

3.10. Development and description of the tool :

3.10.1 Development of the tool:

The tool has been developed after extensive review of literature and discussion with experts.

3.10.2. Description of the Tool:

Data collection instrument consisted of the following sections.

Section-A: Demographic data consisted of eight demographic variables which includes age, religion, educational qualification, occupation, total income (per month) ,residence, dietary pattern and type of family.

Section B: Obstetrical and treatment related data comprises of thirteen obstetrical related and treatment related variables which includes gravida , weeks of gestation ,meaning of GDM, complications of GDM ,diagnosis of GDM, weeks of diagnosis ,treatment ,family history of diabetes, family history of gestational diabetes knowledge about alternative therapy and health benefits of lady's finger.

Table -3

3.10.3 Intervention protocol.

	Experimental Group	Control Group
Place	Antenatal ward	Antenatal ward
Dosage	One lady's finger(10 cm) soaked In150 ml of boiled and cooled water over night.	Routine care
Duration	Five consecutive days	Five days
Time	At 7.30 am.	At 7.30am
Frequency	One time daily in morning.	One time
Administerd by	Investigator	Investigator
Recipient	Antenatal mothers with Gestational diabetes mellitus.	Antenatal mothers with Gestational diabetes mellitus

3.10.4 Content validity

Validity of the tool was assessed using content validity. Content validity was determined by experts from Nursing and Medical. They suggested certain modifications in tool. After the modifications they agreed this tool for assessing effectiveness of lady's finger water in reducing blood sugar level among antenatal mothers with gestational

diabetes at Institute of Obstetrics and Gynaecology and Hospital for Women and Children, Chennai.

3.11 Ethical consideration:

This study was conducted after the approval from the ethical committee, Madras Medical College, Chennai-3. Permission was obtained from the Director of Institute of Obstetrics & Gynaecology and Hospital for Women and Children. All respondents were carefully informed about the purpose of the study and their part during the study and how the privacy was guarded. Confidentiality of the study result was ensured. The freedom was given to the client to leave the study at her will without assigning any reason. No routine care was altered or withheld. Thus the investigator followed the ethical guidelines which were issued by the institutional ethics committee. Written consent was obtained from all participants.

3.12 Pilot study:

A pilot study is a small scale version or trial run, done in preparation for the major study. The principle focus of a pilot study is the assessment of the adequacy of the data collection plan³⁸.

With formal permission from the Head of the Department and content validity from the experts the investigator conducted the pilot study in IOG, Chennai. By probability simple random sampling technique 10 subjects with gestational diabetes mellitus were selected. Pretest blood glucose for both control and experimental group were done by capillary blood glucose monitoring by using Glucometer. For experimental group soaked lady's finger water was given and for control group regular treatment for gestational diabetes was given. Post test was done after 5 days by glucometer. The study shows the feasibility to conduct the proposed study as planned.

3.13 Reliability:

After pilot study reliability of the tool was assessed by using inter-rater method and its correlation coefficient r value was 0.88. This correlation coefficient was very high and it was a good tool for assessing “the effectiveness of soaked lady’s finger water in reducing blood sugar level among the antenatal mothers with gestational diabetes at IOG in Chennai.”

3.14. Data collection procedure:

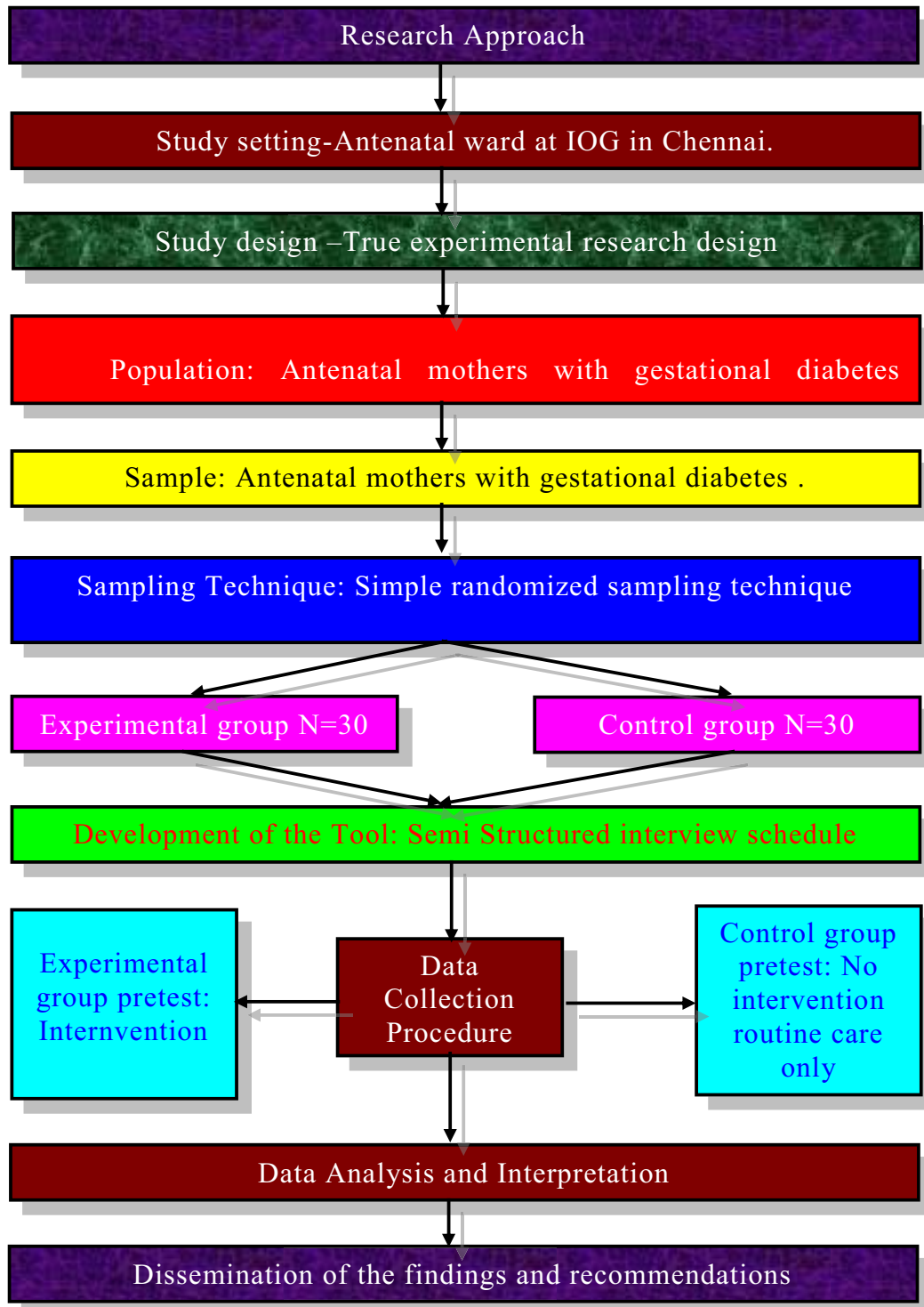
The study was conducted at Antenatal ward from 15.7.2015 to 15.8.2015. After obtaining permission from the Director of Institute of Obstetrics and Gynaecology in Chennai. A self introduction was given by the investigator and after establish a good rapport the informed written consent was obtained from the antenatal mothers with GDM. The objectives and purpose of the study was explained. Confidentiality was maintained. The investigator personally assessed the effectiveness of soaked lady’s finger water in reducing blood sugar level among antenatal mothers with gestational diabetes. Inclusion criteria’s were followed for sample selection. Information about the study was given to the subjects and informed consent was obtained in the prescribed form. The investigator assured the confidentiality. Subjects selected for the pilot study were excluded. 60 subjects were selected by simple random sampling technique, 30 per each in experimental and control group. Pre-test by fasting and postprandial blood sugar was determined. Data were collected from the subjects. Soaked lady’s finger water was given. In this study lady’s finger water was prepared by cutting one medium sized lady’s finger (approximately 10 cm) into two halves vertically and soaking it in 150 ml of water over night. The gestational diabetic client were instructed to consume this water in empty stomach (after discarding the lady’s finger) in the next morning for five consecutive

days followed by breakfast with 200ml of water. The post- test by fasting and post prandial sugar was determined on the seventh day.

3.15. *Data entry and data analysis:*

The collected data were analyzed by descriptive statistics such as mean, standard deviation, frequency and Percentage and inferential statistics such as Chi square test and Fisher exact test and paired 't' test. Collected data were presented by tables and diagrams.

Fig-3.1 schematic representation of methodology



**DATA ANALYSIS
AND
INTERPRETATION**

CHAPTER IV DATA ANALYSIS AND INTERPRETATION

Data analysis is the method of organizing data in such a way that the research question can be answered. Interpretation is the process of making sense of results and of examining the implications of the findings within a border context.

The chapter deals with the analysis and interpretation of data collected from subjects with diabetes mellitus.

The data collected was edited, tabulated, interpreted and the findings obtained were presented in the form of tables and diagrams that is represented in the following headings.

- Section-1 : Assessment of demographic variables ,obstetric variables and knowledge of GDM mothers regarding the complications of uncontrolled sugar.**
- Section-2 : Assessment of blood sugar level among experimental and control group before intervention.**
- Section-3 : Assessment of blood glucose level among experimental and control group of the subjects after intervention.**
- Section-4 : Comparison of blood glucose level among control and experimental group.**
- Section-5 : Assess the effectiveness of soaked lady's finger water among the antenatal mothers with Gestational diabetes mellitus.**
- Section-6 : Association of blood glucose level with selected demographic variables and obstetric variables.**

Table-3: Demographic profile of subjects with Gestational diabetes mellitus

Demographic variables		Control group		Experimental group	
		frequency	In %	frequency	In %
Age	20-25	16	53.3	15	50
	26-30	10	33.3	8	26.7
	31 – 35	2	6.7	6	20
	36 -40	2	6.7	1	3.3
Religion	Hindu	17	56.7	21	70
	Christian	10	33.3	8	26.7
	Muslim	3	10	1	3.3
Education	Un educated	3	10	0	0
	Primary	20	66.7	14	46.7
	Higher secondary	6	20	11	36.7
	Graduate and others	1	3.3	5	16.7
Occupation	Home maker	22	73.3	24	80.0
	Self employment	8	26.7	5	16.7
	Govt.employee	0	0	1	3.3
Monthly income	<7000	18	60	14	46.7
	7000-10000	12	40	9	30.0
	>10,000	0	0	7	23.3
Residence	Urban	17	56.7	19	63.3
	Rural	13	43.3	11	36.7
Type of family	Joint family	12	40	17	56.7
	Nuclear family	18	60	13	43.3
Type of food	Vegetarian	6	20	3	10
	Non vegetarian	24	80	27	90
Family history of diabetes mellitus	Yes	19	63.3	15	50
	No	11	36.7	15	50
If yes mention	Mother	8	26.7	5	16.7
	1,2	2	6.7	2	6.7
	1,2,3	0	0.0	1	3.3
	Father	7	23.3	6	20
	Blood relatives	2	6.7	1	3.3

Table -3 shows the demographic information of subject who participated for the following study “to assess the effectiveness of soaked lady’s finger water in reducing blood sugar level among antenatal mothers with gestational diabetes mellitus at IOG , Chennai.”

In the experimental group, majority of the subjects 53.3% were between 20-25 years of age and 26-30 years of age 27% and 31-35 years of age 20% (6), 36-40 years of age 3.3%(1).

Most of the participants(70%) belong to Hindu **religion** . Majority of the participants 46.7%(14) have completed primary **education**.

With regards to the occupational status, majority of the subjects (80 %) were homemakers and most of them (47 %) belonged to **low income status**.

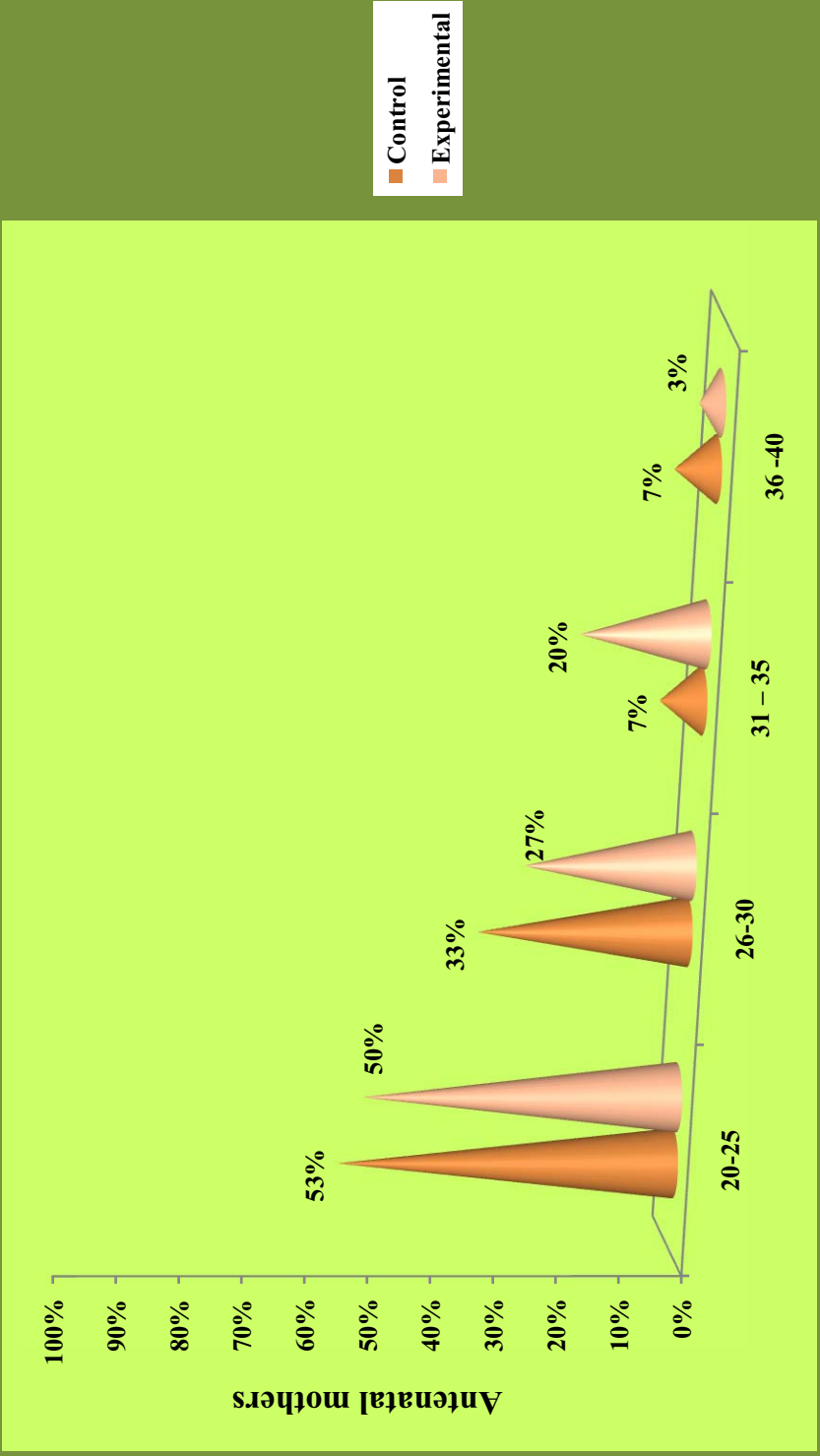
According to the residential status most of them (63.3%) were lived in **urban areas**. Majority of the subjects (56.7%) were in **joint family** .

With regard to dietary pattern, majority of them (90%) were **non vegetarian** and 50% of the subjects were having the family history of diabetes mellitus.

In control group, majority of the subjects (53.3 %) were between **the age group of 20-25 years** of age and most of them (57%) belonged to Hindu religion. Majority of the subjects (67%) have **completed primary education** and

In terms of occupational status most of the subjects (73.3 %) were homemakers. Most of the subjects(60 %) belonged to **low income status** and most of them(57%) were lived in **urban areas**. Majority of the subjects (60 %) were lived in **nuclear family**.

With regards to dietary pattern, most of them were (80 %) **non vegetarian** . 63.3% (19) of the subjects were have the **family history of diabetes mellitus**.



Age in years

■ Control
 ■ Experimental

Figure-4.1 Age wise distribution of subjects with gestational diabetes mellitus.

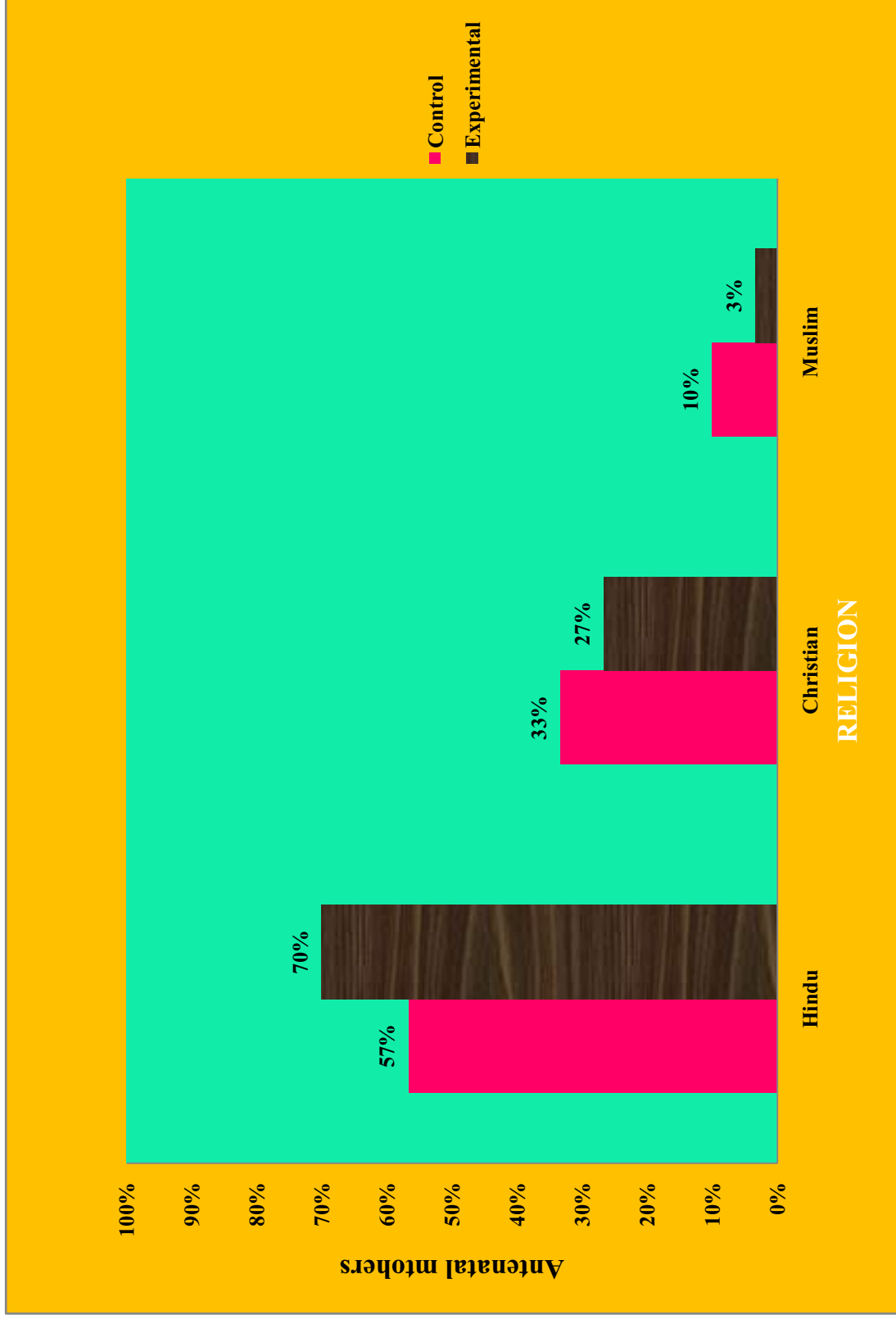


Figure 4.2 Religion wise distribution of subjects with gestational diabetes mellitus.

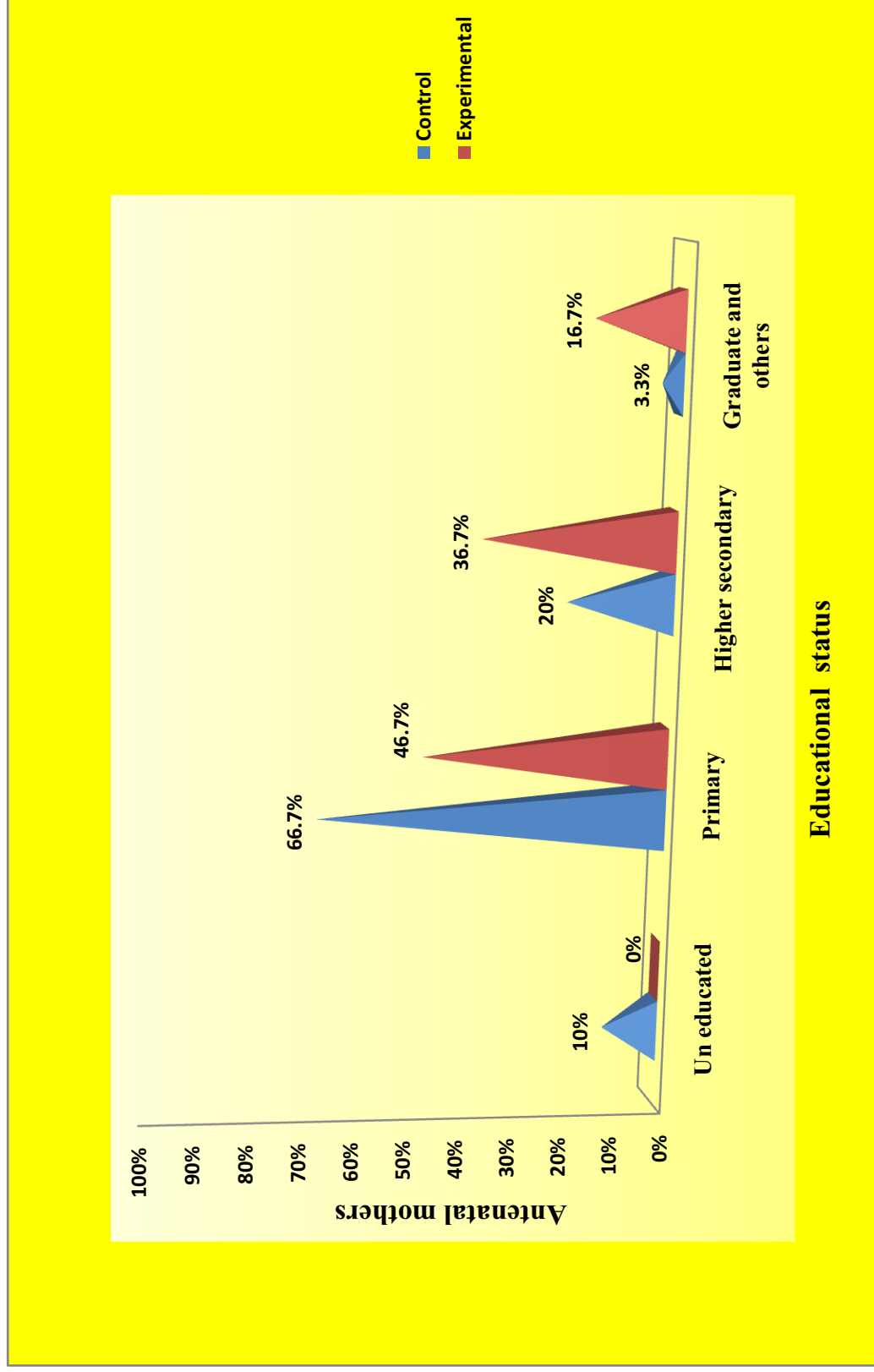


Figure-4.3 Educational status wise distribution of subjects with gestational diabetes mellitus

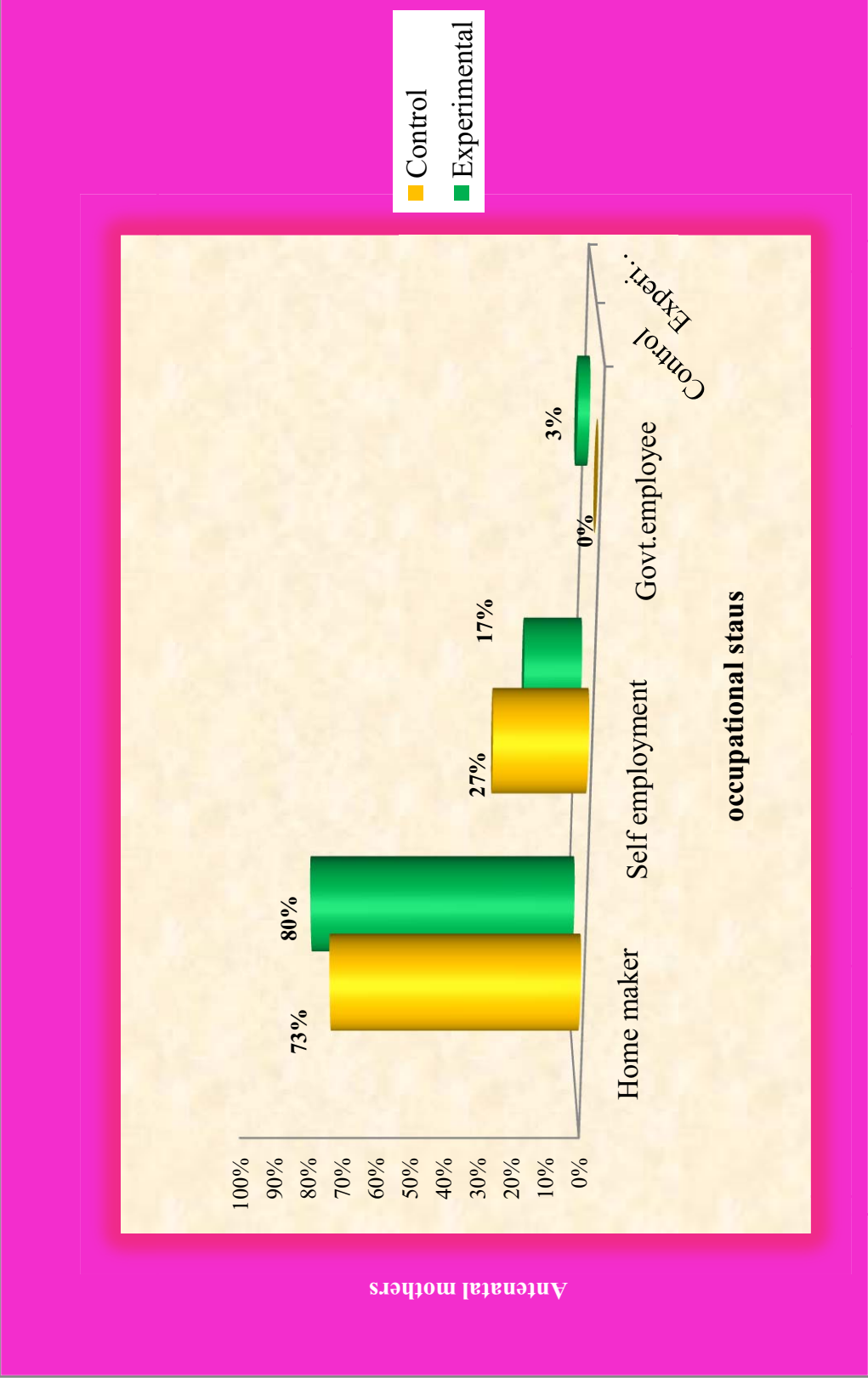


Figure -4.4 Occupational status wise distribution of subjects with gestational diabetes mellitus.

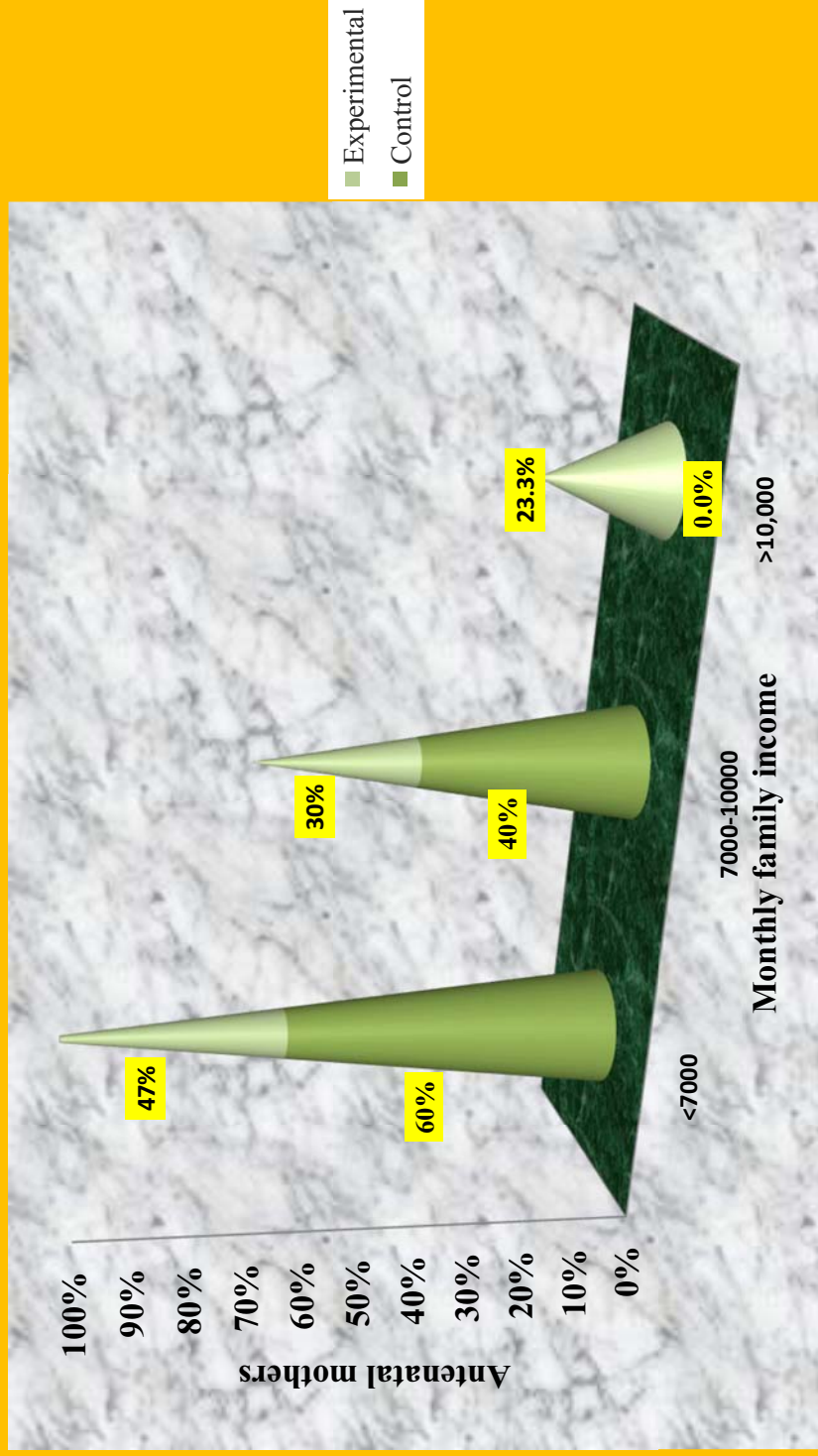


Figure -4.5 Monthly family income wise distribution of subjects with gestational diabetes mellitus

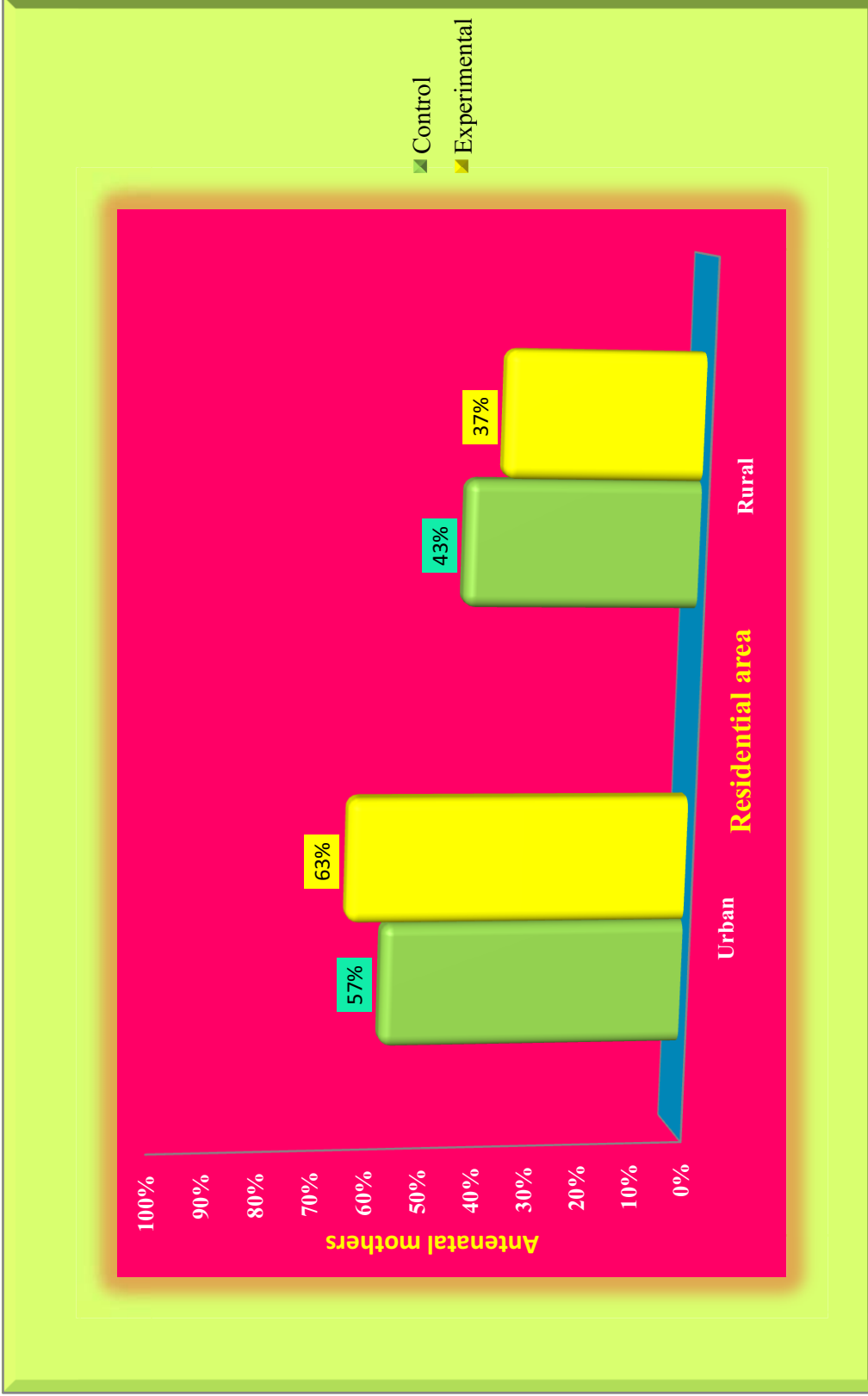


Figure -4.6 Residential area wise distribution of subjects with gestational diabetes mellitus.

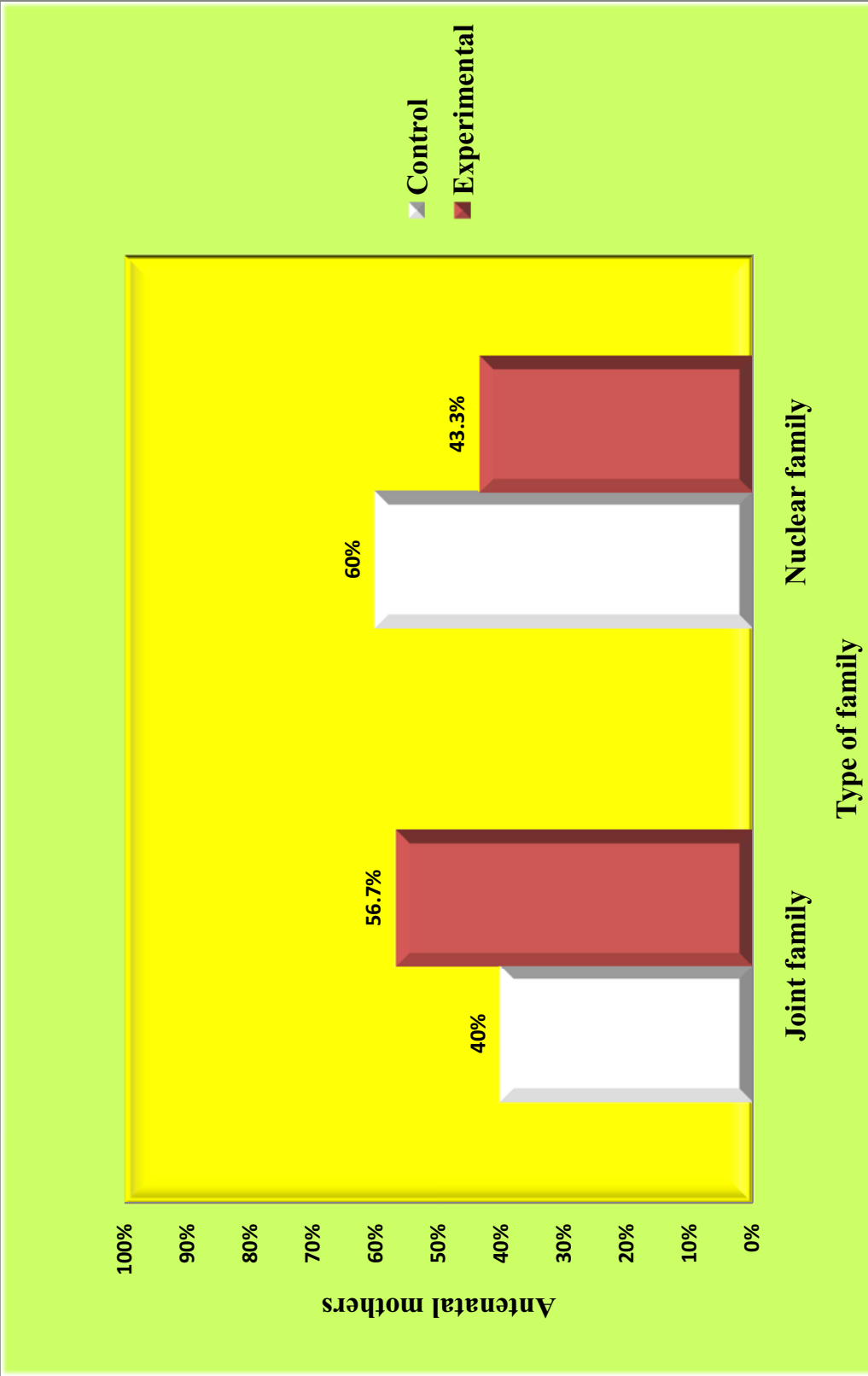


Figure -4.7 Type of family wise distribution of subjects with gestational diabetes mellitus

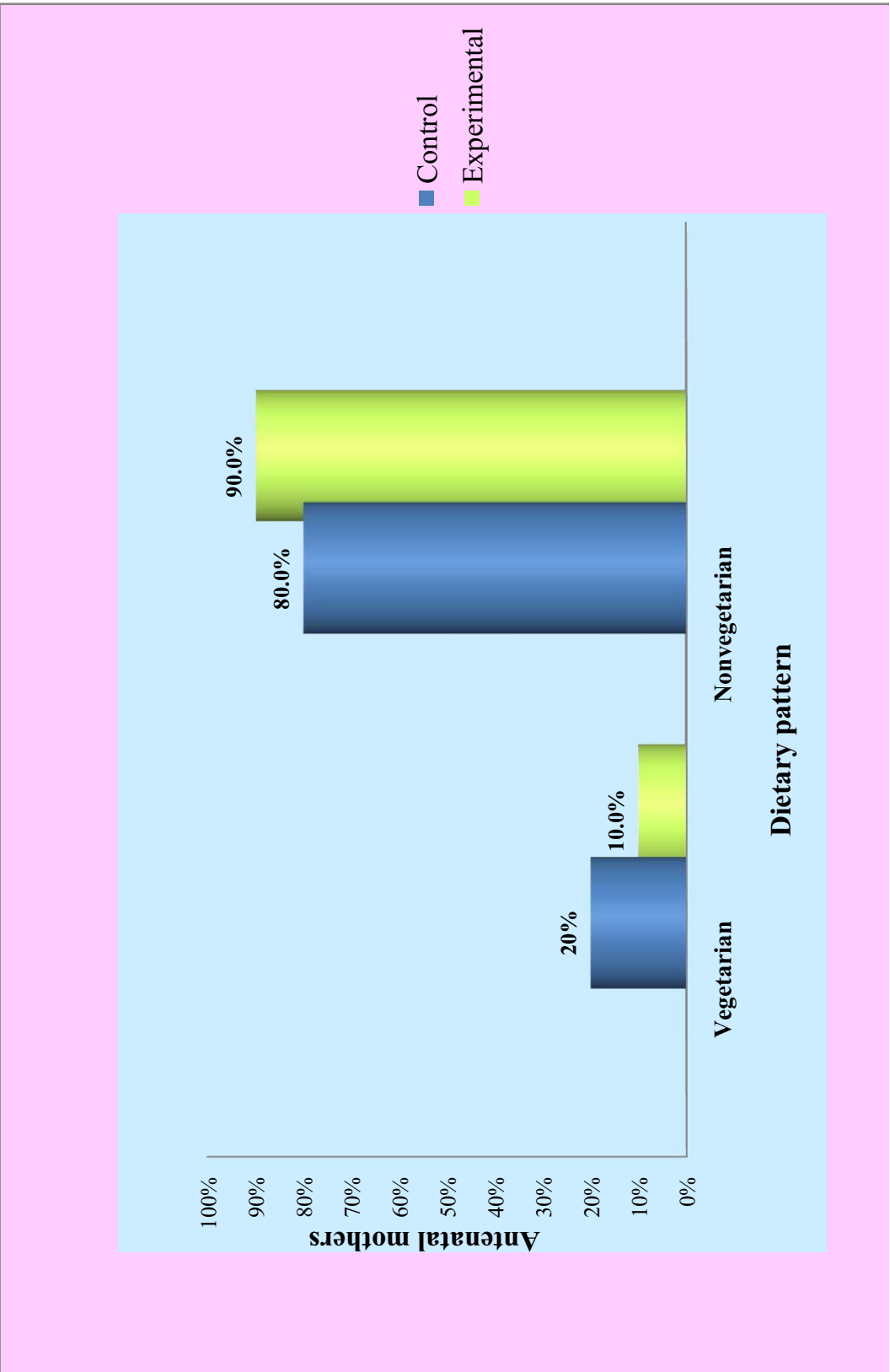


Figure-4.8 Dietary pattern wise distribution of subjects with gestational diabetes mellitus

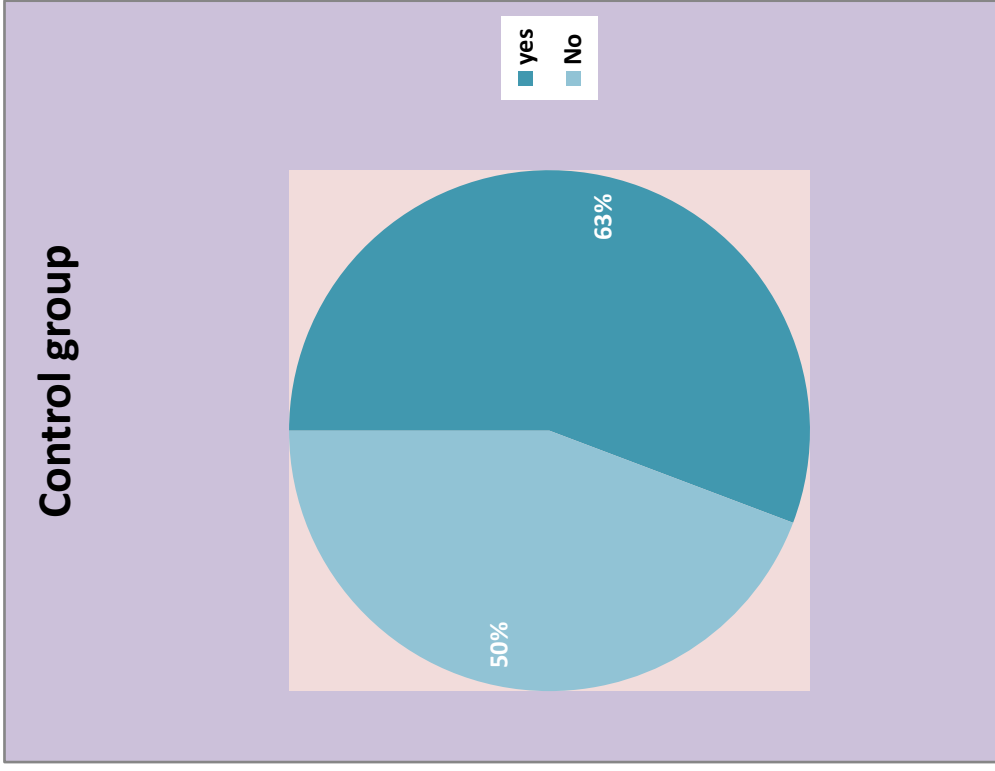
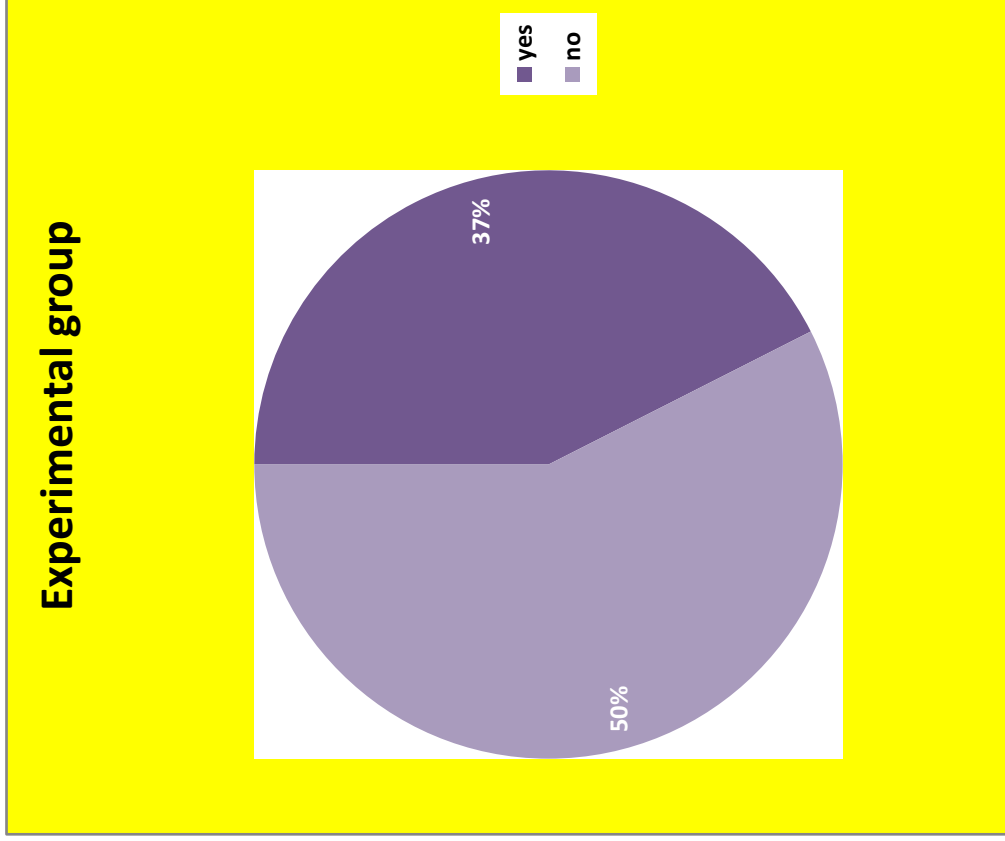


Figure-4.9 Family history of diabetes mellitus wise distribution of subjects

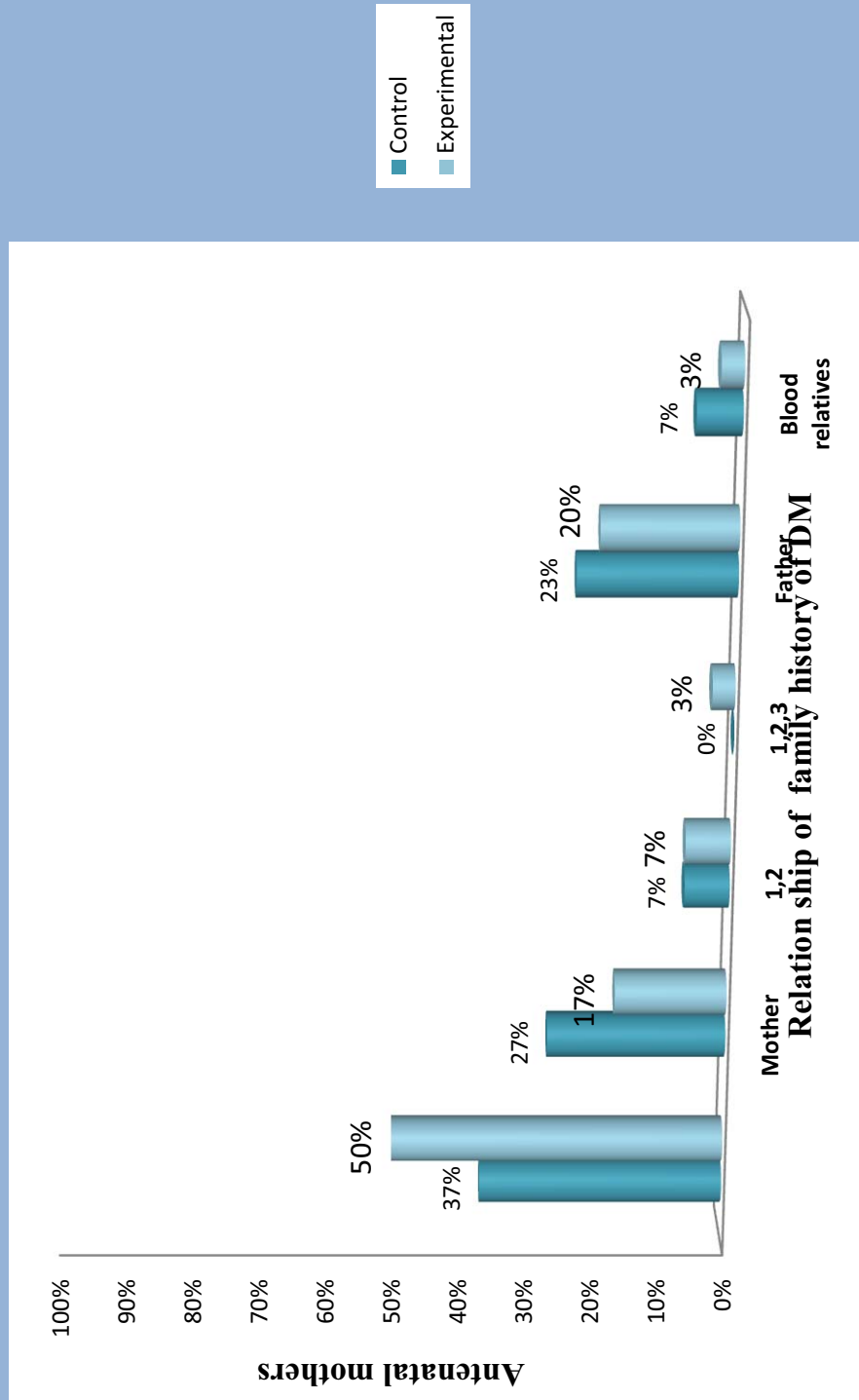


Figure-4.10 Distribution of subjects according to their family history with the relationship

Table-4 Obstetric variables of Antenatal mothers with Gestational Diabetes Mellitus.

Obstetric variables		Control group		Experimental group	
		frequency	in %	frequency	in %
Gravida	Primi	10	33.3	9	30
	Multi gravid	20	67.7	21	70
Weeks of gestation	20-24 weeks	3	10	3	10
	25-28 week	10	33.3	9	30
	29-32 weeks	17	56.7	17	56
	33-36 weeks	0	0	1	3.3
Comorbid illness	Yes	0	0	0	0
	No	30	100	100	100
Family history of GDM	Yes	1	3.3	1	3.3
	No	29	96.7	29	96.7
Weeks of diagnosis	20th week	22	73.3	14	46.7
	24th week	6	20	4	13.3
	28th week	0	0	7	23.3
	32nd week	2	6.7	5	16.7
Treatment for GDM	Diet	6	20	9	30
	Insulin	24	80	21	70

Table 3- shows the obstetric variables of subjects those who participated for the study.

In experimental group, majority of the subjects (70 %) were 2nd gravida and most of them (57%) were of 29-32 weeks of gestation.

According to their knowledge about the meaning and complications of Gestational diabetes mellitus, majority of the subjects (53.3%) responded to gestational diabetes as , increased blood sugar during pregnancy and most of them(43.3%) were aware of the complications of big baby, congenital anomaly and fetal loss.

With regards to the diagnosis of gestational diabetes mellitus, majority of them(46.7%) were diagnosed at 20th week of gestation and most of the subjects (70 %) were on insulin treatment.

With regards to family history of gestational diabetes, majority of them (96.7%) were not having the family history of gestational diabetes.

According to the knowledge about the alternative therapy for gestational diabetes 50% of them were got the knowledge and 60% of them were known about the health benefits of lady's finger .

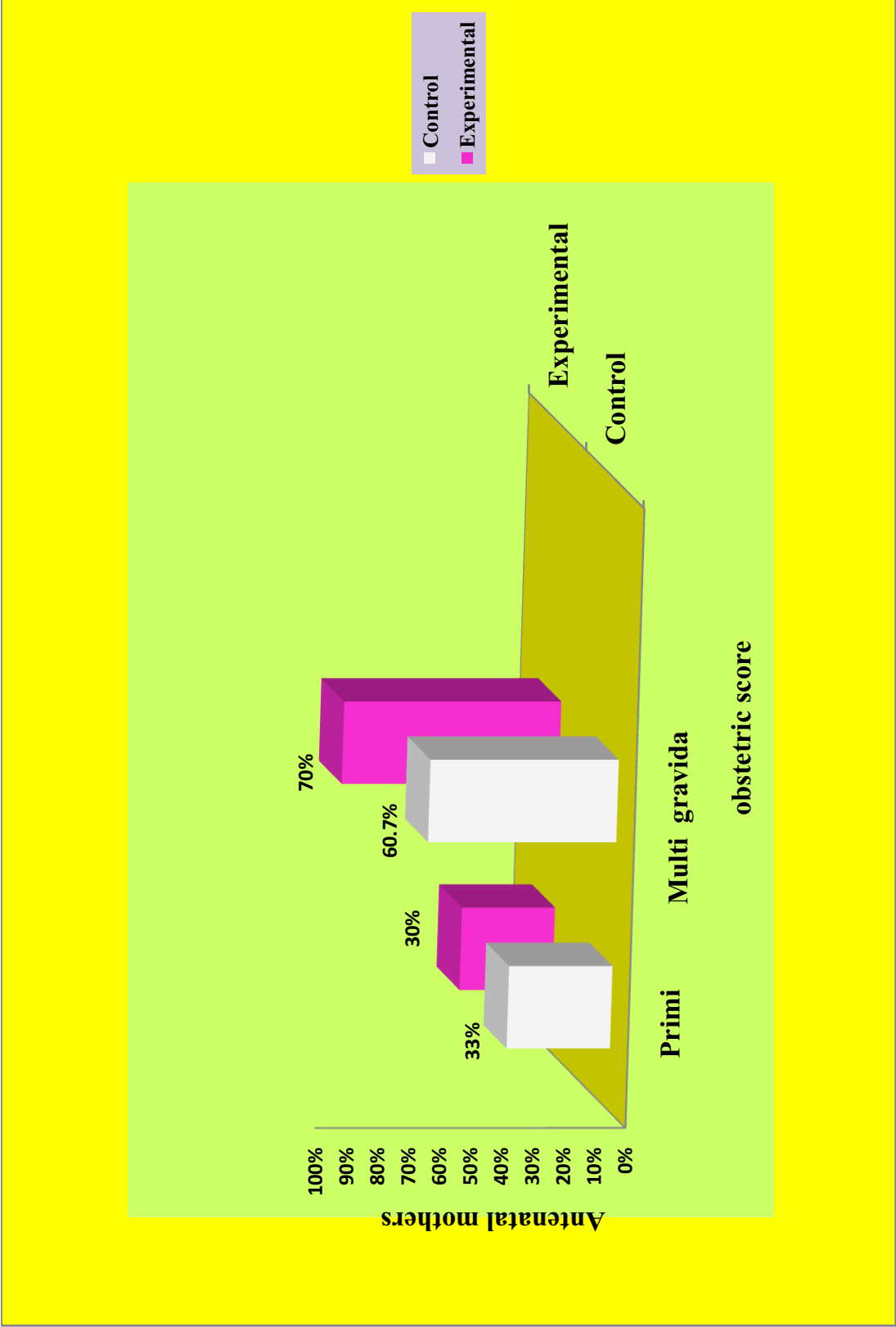
In control group majority of the subjects (56.7 %) were 2nd gravida and majority of them (56.7%) were of 28-32 weeks of gestation

According to the knowledge about the meaning and complications subjects (46.7%) responded to gestational diabetes with increased blood sugar level and most of them (43.3%) were not aware of the complications of gestational diabetes.

Majority of them (73.3%) were diagnosed as gestational diabetes at the 20th week of gestation and most of them (80 %) were on insulin treatment.

With regards to family history of gestational diabetes, majority of the participants(96.7%) were not have the family history of gestational diabetes .

According to the knowledge on alternative therapies 56.7% of them have no knowledge about the alternative therapy for gestational diabetes and 53.3% of them were known about the health benefits of lady's finger, 43.3% of them were told that the lady's finger is useful in reducing blood sugar level.



.Figure-4.11 Obstetric score wise distribution of subjects with gestational diabetes mellitus.

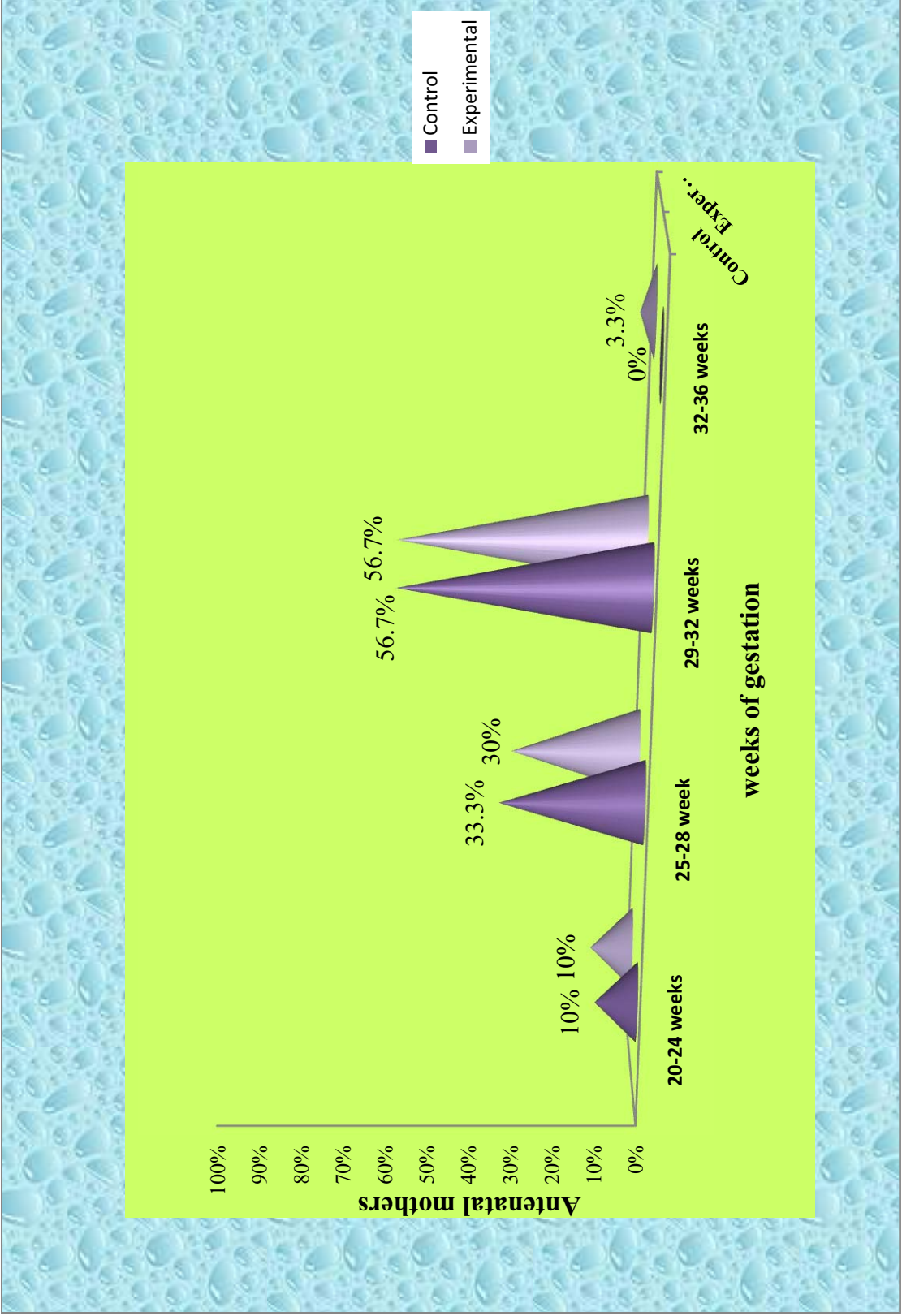


Figure-4.12 Weeks of gestation wise distribution of subjects with gestational diabetes mellitus.

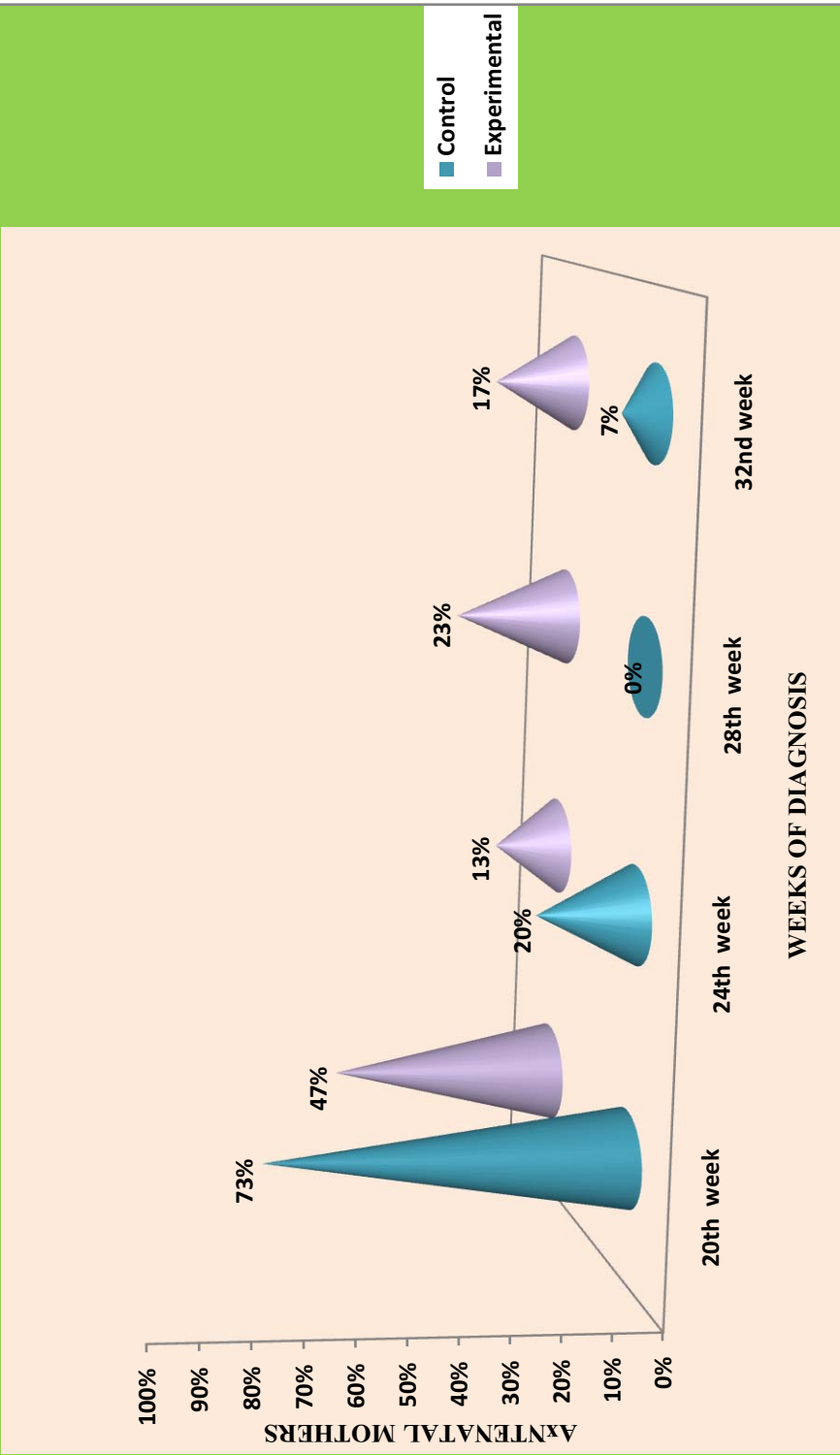


Figure-4.13 Weeks of diagnosis wise distribution of subjects with Gestational diabetes mellitus.

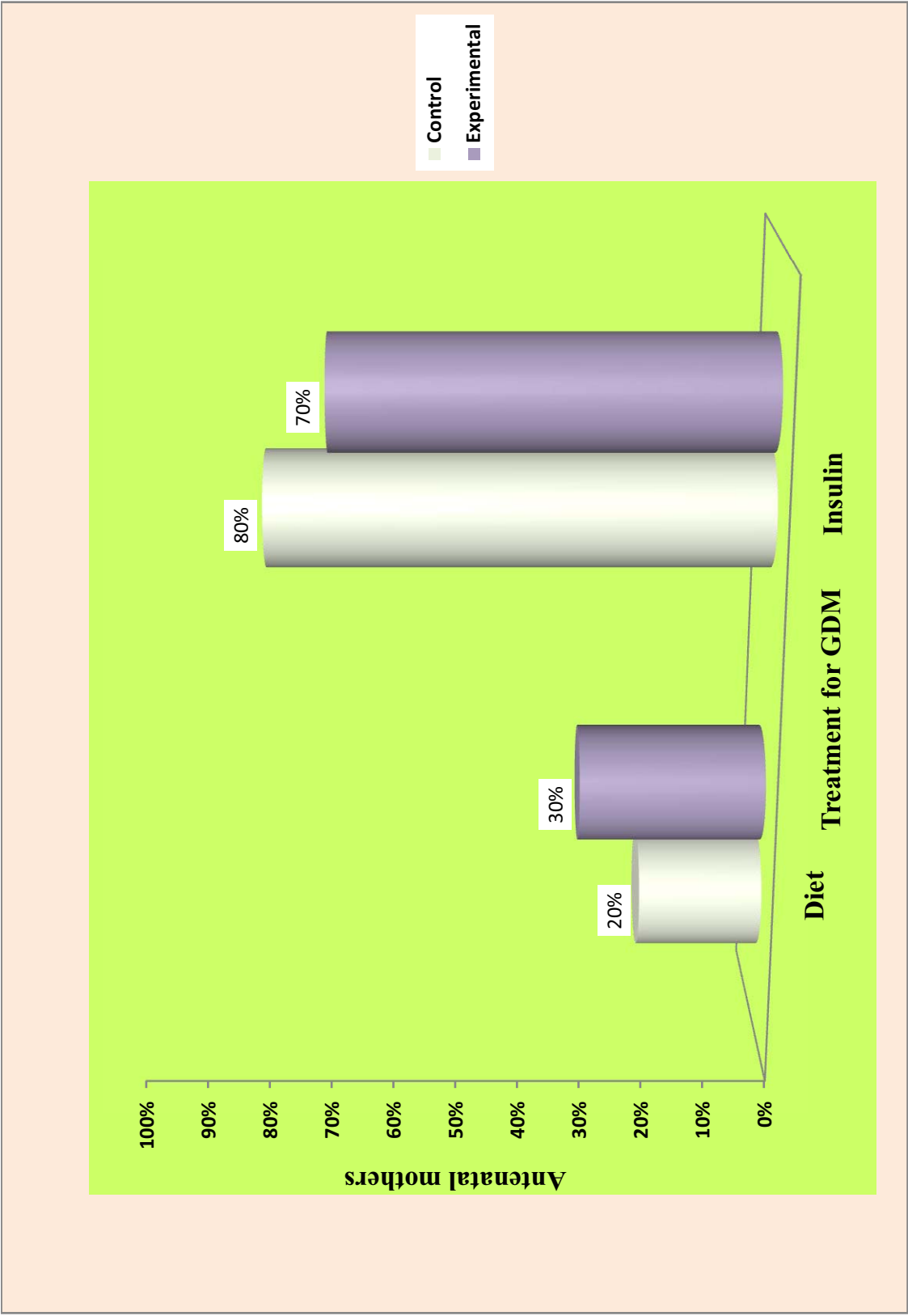


Figure -4.14 Distribution of subjects according to their treatment for GDM.

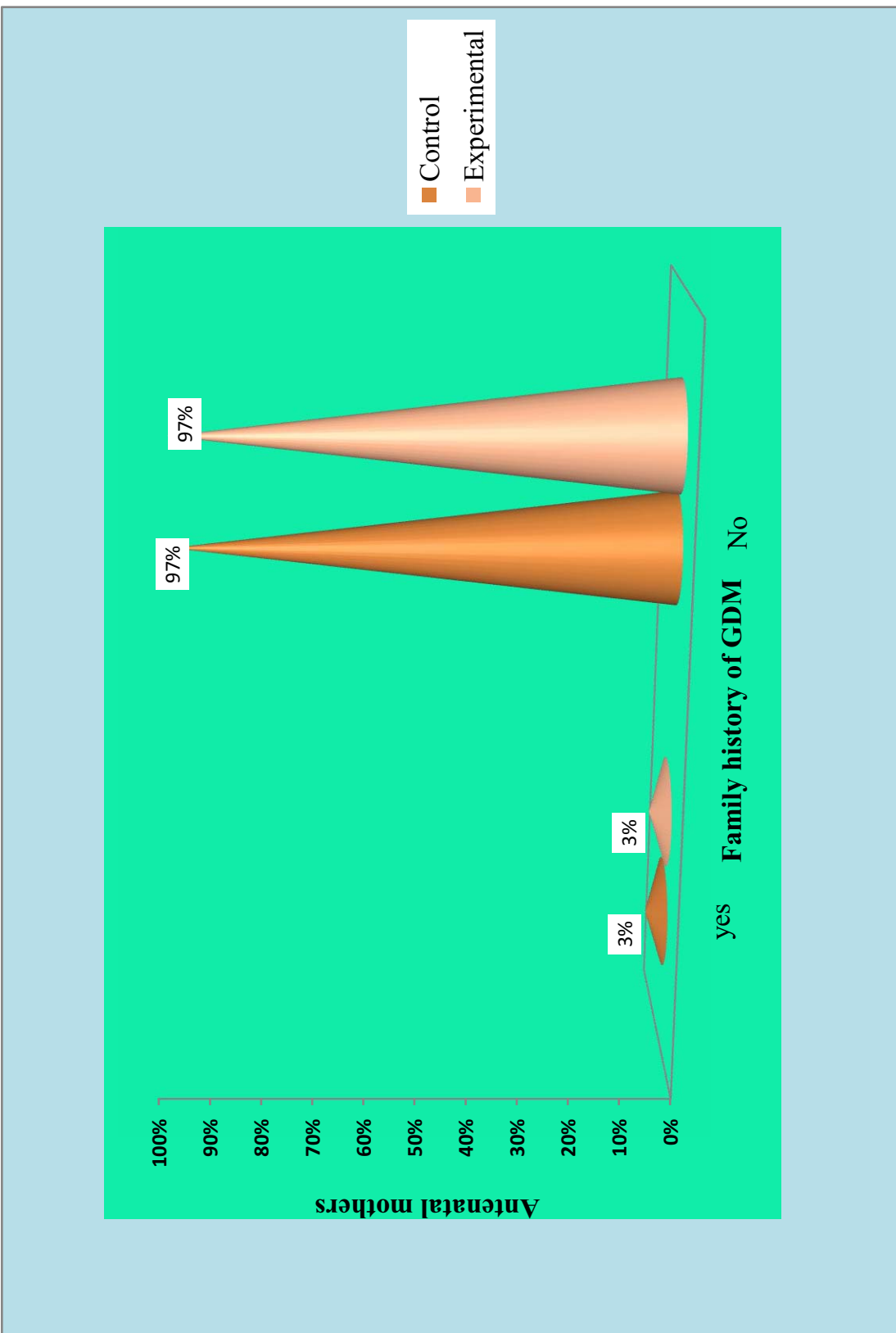


Figure-4.15 Distribution of subjects according to their family history of GDM

Table -5 Knowledge of GDM mothers regarding the complications of uncontrolled blood sugar level.

Knowledge of GDM mothers		Control group		Experimental Group	
		frequency	in %	frequency	in %
GDM stands for	increased blood sugar level during pregnancy	14	46.7	16	53.3
	increased sugar level before pregnancy	2	6.7	2	6.7
	increased starch level	1	3.3	1	3.3
	not known	13	43.3	11	36.7
Complications of GDM	Bigbaby,congenital anomally,fetal loss	9	30	13	43.3
	small baby	3	10	1	3.3
	haemorrhage	5	16.7	4	13.3
	not known	13	43.3	12	40
knowledge about alternative therapy for GDM	Yes	13	43.3	15	50
	No	17	56.7	15	50
Health benefits of lady's finger	Yes	17	56.6	12	40
	No	13	43.4	18	60
If yes mention		14	46.7	17	57
	Brain growth	3	10	2	7
	Reduce sugar	13	43.3	11	36.7

In experimental group most of the subjects (53.3%) have responded to gestational diabetes with increased blood sugar level and most of them(43.3%) were aware of the complications of big baby, congenital anomaly and fetal loss due to gestational diabetes .

Majority of them (36.7 %). have told that the lady's finger is useful in reducing blood sugar level.

In control group most of the subjects (46.7%) were responded gestational diabetes as increased blood sugar level and majority of them(43.3%) are said that they were not known about the complications of gestational diabetes.

Majority of them(56.7%) have no knowledge about the alternative therapy for gestational diabetes and 53.3% of them were known about the health benefits of lady's finger.

Most of them (43.3%) have told that the lady's finger is useful in reducing blood sugar level.

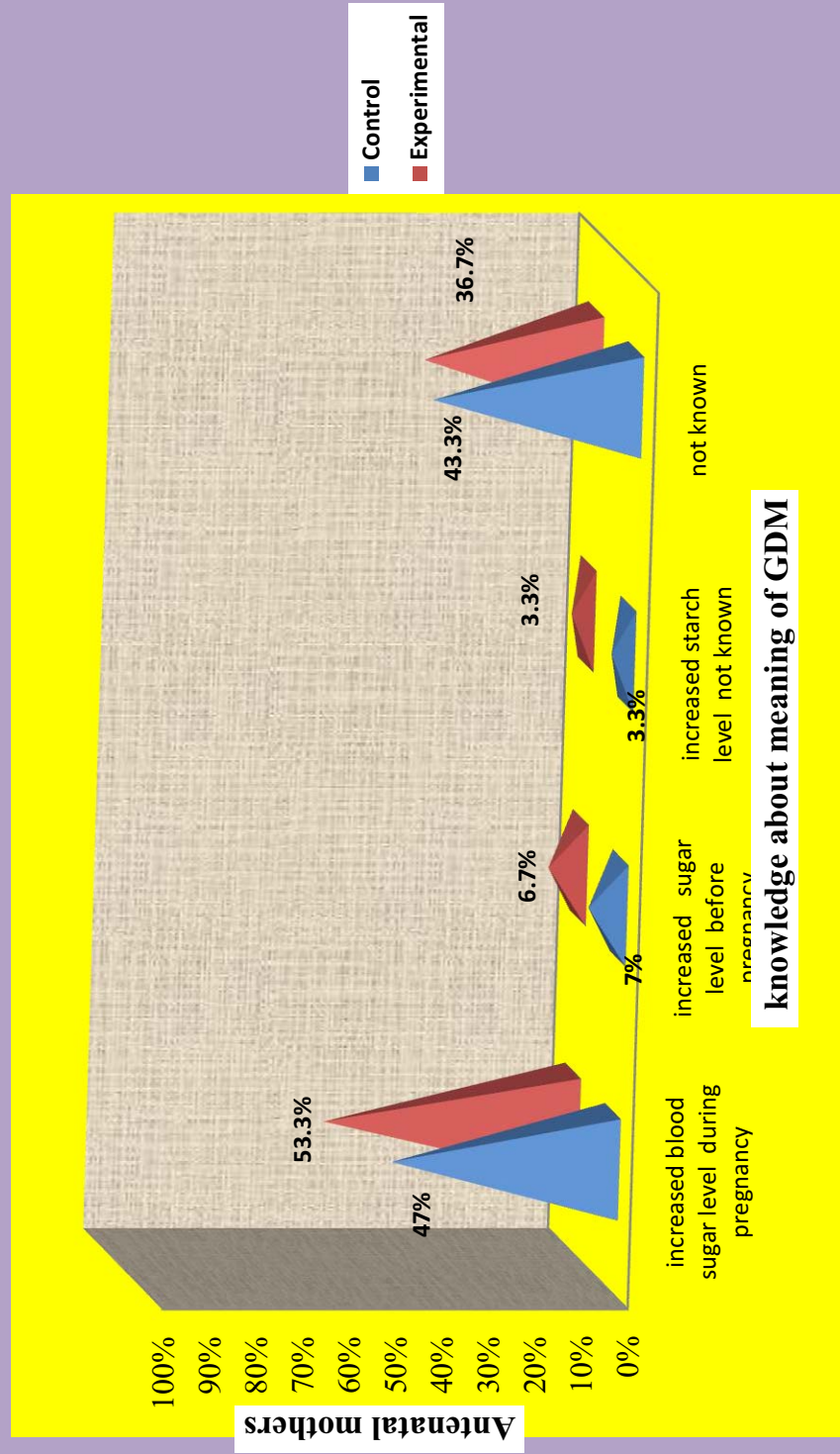


Figure-4.16 Distribution of subjects according to their knowledge about gestational diabetes mellitus.

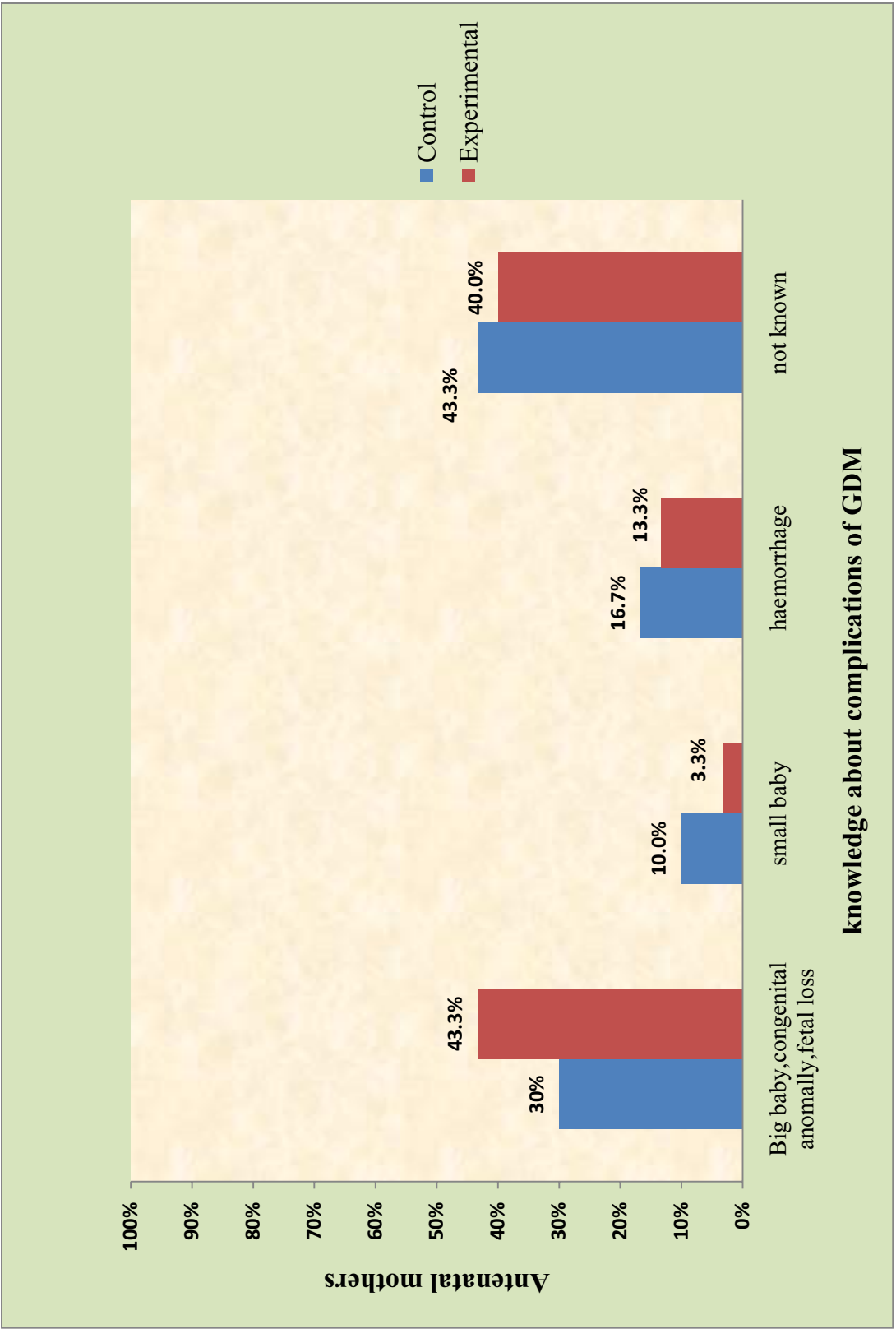


Figure-4.17 Distribution of subjects according to their knowledge about complications of GDM.

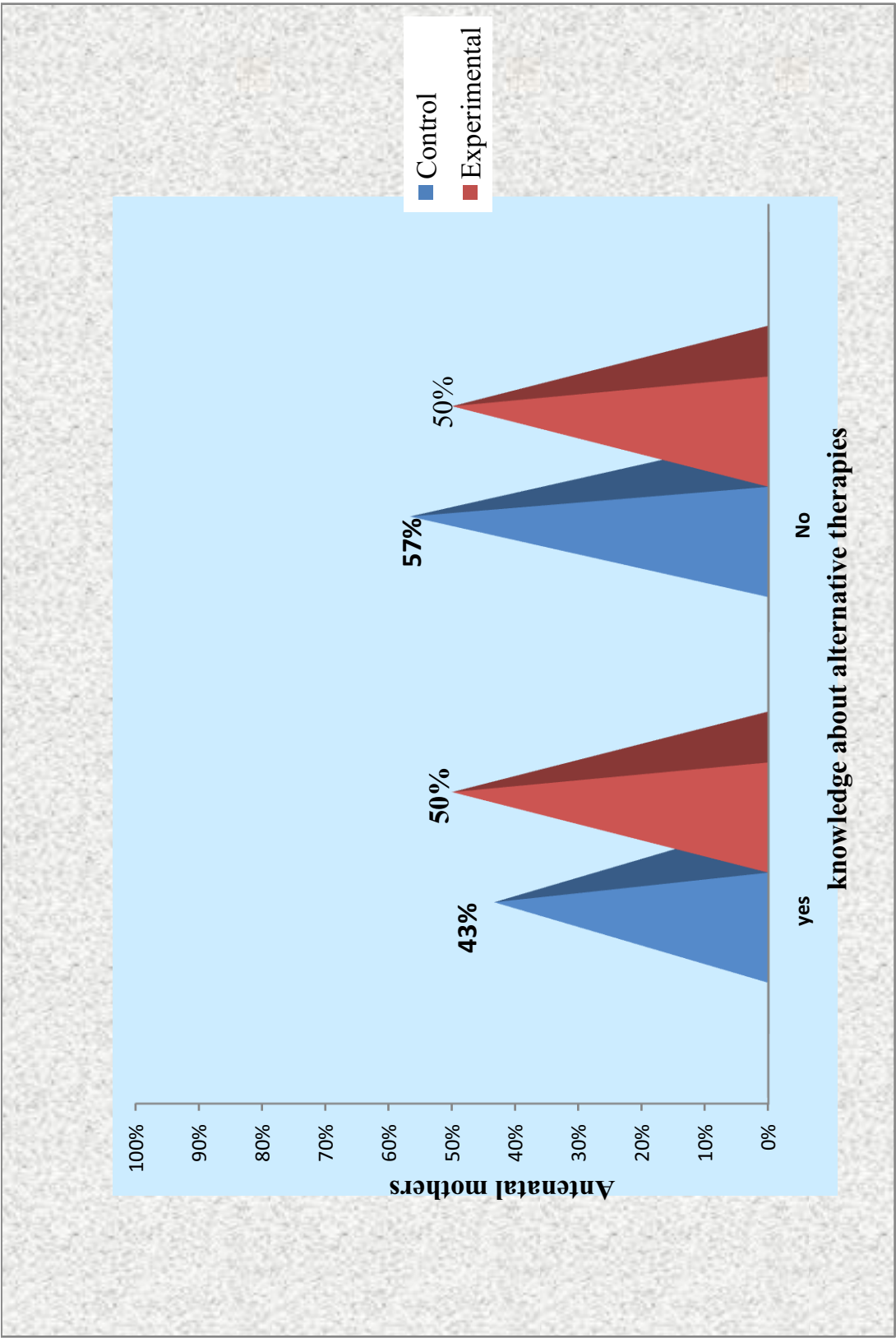


Figure —4.18 Distribution of subjects according to their knowledge about alternative therapies for GDM.

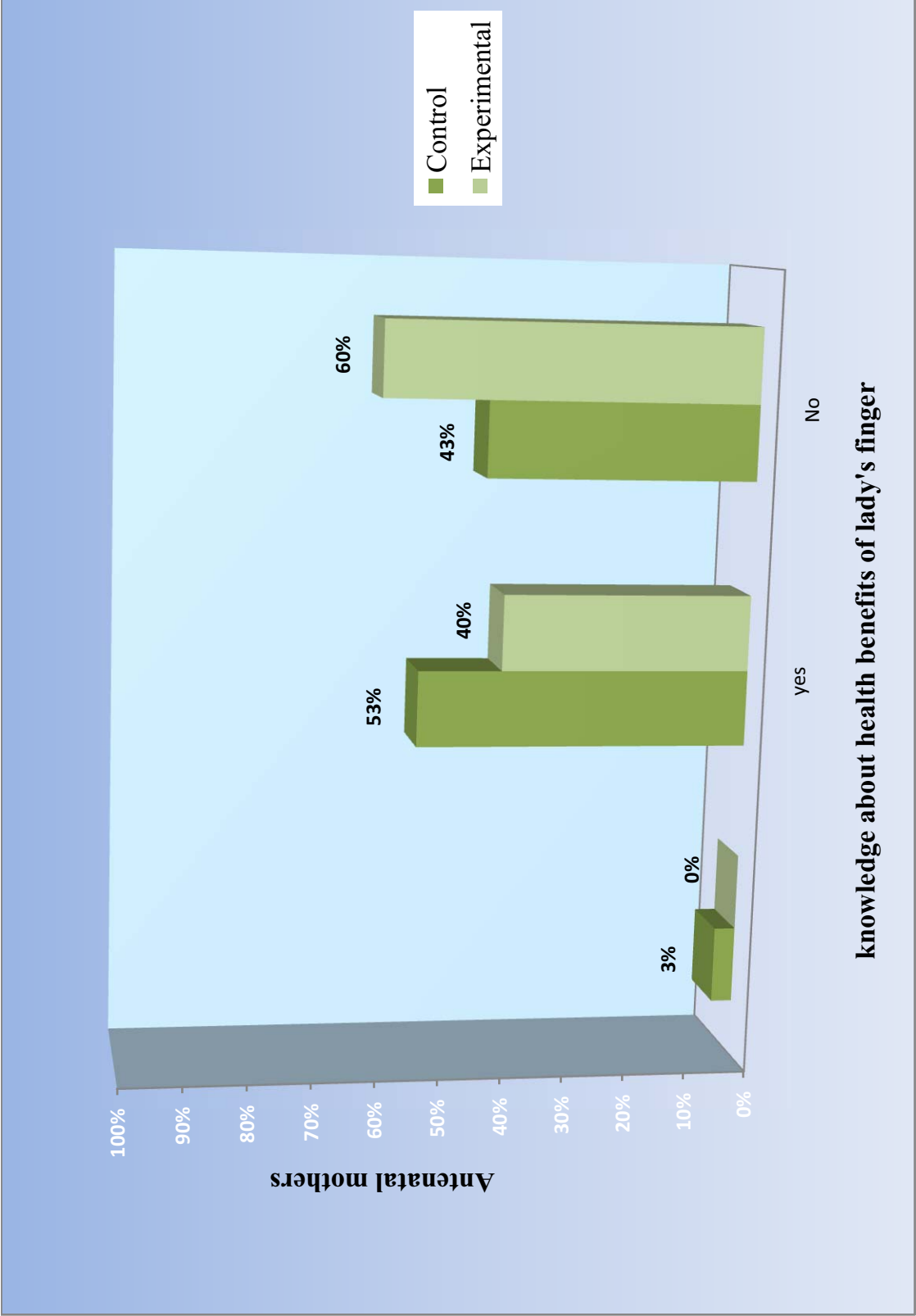


Figure-4.19 Distribution of subjects according to their knowledge about health benefits of lady's finger.

Section-II

Table -6: Assess the pre test blood glucose level among the gestational diabetes clients.

	No .of patients	Experimental group		Control group	
		Mean	Std deviation	Mean	Standard deviation
Pre testFBS	30	110.07	23.623	110.73	11.255
Pre testPBS	30	152.27	17.116	153.43	13.815

Considering FBS

In the pretest experimental group mean FBS value is 110.07.and in control group the mean FBS value is 110.73.

Considering PPBS

In considering pretest experimental group PPBS mean value is 152.27 and in control group the PPBS mean value is 153.43.

In pre- test the mean blood glucose level was above the normal blood glucose level of FBS and PPBS.

SECTION -III

Table-7: Assess the post-test blood glucose level among the gestational diabetes clients.

	No .of patients	Experimental group		Control group	
		Mean	Std deviation	Mean	Standard deviation
Post test FBS	30	90.93	9.199	95.57	10.361
Post test PPBS	30	124.90	12.818	129.57	12.045

Considering FBS:

In experimental group the post-test mean blood glucose FBS mean value is 90.93 ± 9.199 . In control group post -test FBS blood glucose mean value is 95.57 ± 10.36 .

Considering PPBS:

In the post-test, experimental group the PPBS blood glucose mean value is 124.90 ± 12.818 . In control group the PPBS blood glucose mean value is 129.90 ± 12.045 .

Section-IV

Table-8: Comparison of pre-test and post-test blood glucose level among experimental and control group

		Mean	Std. Deviation	t value	p value
Experimental group	Post_FBS	90.93	9.199	5.686	0.001***
	Pre_FBS	110.07	23.623		
	Post_PPBS	124.90	12.818	10.515	0.001***
	PRE_PPBS	152.27	17.116		
Control group	Post_FBS	95.57	10.361	5.576	0.004
	Pre_FBS	110.73	11.255		
	Post_PPBS	129.57	12.045	7.798	0.002
	PRE_PPBS	153.43	13.816		

*Significant at $P < 0.05$

**highly significant at $P < 0.01$.

*** Very high significance at 0.001

In post FBS $t=5.686$. $P=0.001$ ***

In post PPBS $t=10.515$. $p=0.001$ ***

Considering FBS: In the experimental group pretest FBS mean value is 110.07 and in post FBS mean value is 90.93. The mean difference is 19.14. The difference between pretest and posttest FBS is large and $p=0.001$ *** statistical significant is high.

In the control group the pre test FBS mean value is 110.73 and in post test FBS mean value are 95.57. The difference between pre- test and post- test FBS is 15.16 .The

difference is small between pre- test and post- test and it's statistical significance is $p=0.004$. It is lower than the experimental group.

Considering PPBS: In experimental group pre test PPBS is 152.27 and post test PPBS is 124.90. The mean difference is 27.37. The difference between pre-test PPBS and post-test PPBS is high and its statistical significance is ($p=0.001$) high. In control group the pre- test PPBS value is 153.43 and post-test PPBS value is 129.57. The mean difference is 23.86 and its statistical significance is ($p=0.002$) lower than the experimental group.

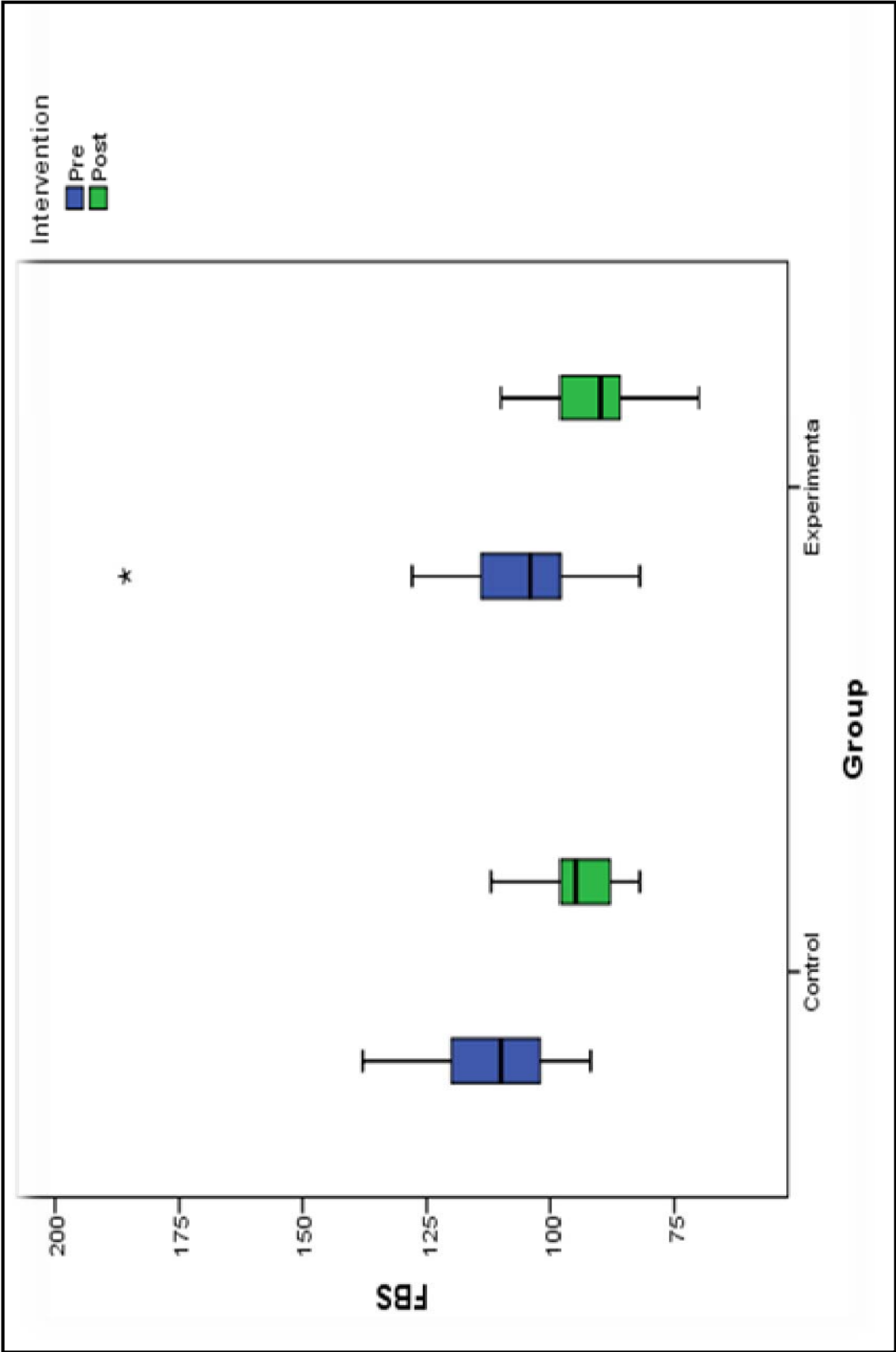


Figure-4.19 Mean Comparison of pretest and post test FBS score among experimental and control group.

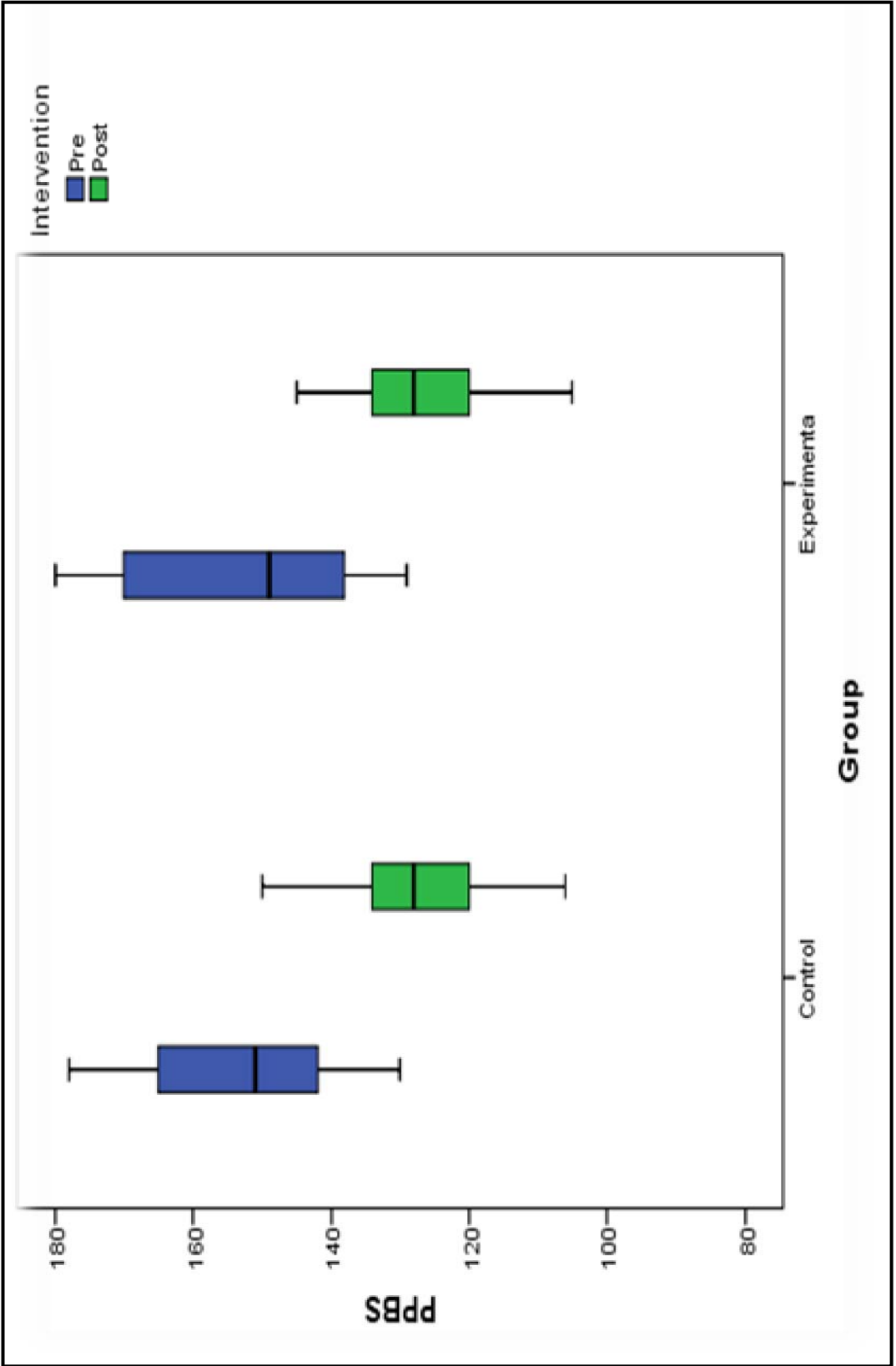


Figure -4.20 Mean Comparison of pretest and post test PPBS score among experimental group and control group.

SECTION-V

Table-9: Effectiveness of soaked lady's finger water on control of blood sugar level among antenatal mothers with gestational diabetes mellitus.

		Mean score	Mean difference with 95% confidence interval	Percentage Difference With 95% confidence Interval
Control group	Pre FBS	110.73	15.17 (9.70-20.632)	13.7%
	Post FBS	95.57		
	Pre PPBS	153.43	23.87 (17.60-30.13)	15.6%
	Post PPBS	129.57		
Experimental group	Pre FBS	110.07	19.13 (12.25-26.02)	17.4%
	Post FBS	90.93		
	Pre PPBS	152.27	27.37 (22.044-32.690)	17.9%
	Post PPBS	124.90		

Considering FBS, the level got reduced by 17.4% in experimental group and 13.7% in control group. Considering PPBS, level got reduced by 17.9% in and the effectiveness of lady's finger water at control group. The FBS level got reduced by 17.4% and the PPBS level got reduced by 17.9%. Differences between pre- test and post- test score was analyzed by using mean difference with 95% CI (confidence interval).

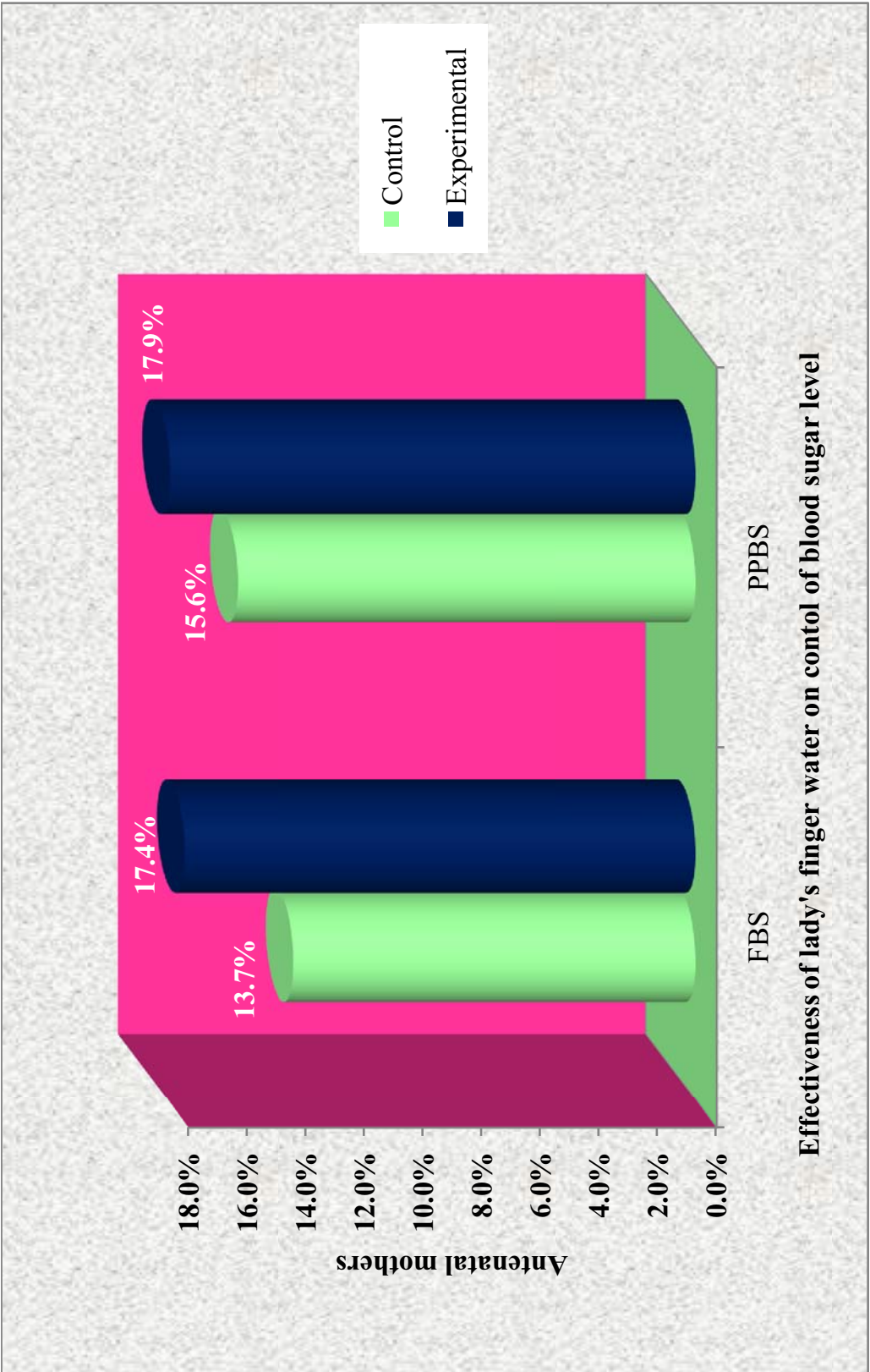


Figure-4.22 Shows the effectiveness of soaked lady's finger water on control of blood sugar level among Antenatal mothers with Gestational diabetes mellitus.

SECTION-VI

Table – 10: Association of FBS level with socio-demographic variables (experimental)

Demographic variables		Post FBS				Chi square & Fisher exact values	p value
		Normal <90		Abnormal >90			
		frequency	in %	frequency	in %		
Age	20-25	15	53.6	0	0	$\chi^2=8.571$	p=0.036
	26-30	8	28.6	0	0		
	31 – 35	4	14.3	2	100		
	36 -40	1	3.6	0	0		
Religion	Hindu	19	67.9	2	100	$\chi^2=0.918$	p=0.632
	Christian	8	28.6	0	0		
	Muslim	1	3.6	0	0		
Education	Primary	13	46.4	1	50	$\chi^2=0.466$	p=0.792
	Higher secondary	10	35.7	1	50		
	Graduate and others	5	17.9	0	0		
Occupation	Home maker	22	78.6	2	100	$\chi^2=0.536$	p=0.765
	Self employment	5	17.9	0	0		
	Govt.employee	1	3.6	0	0		
Monthly income	<7000	12	42.9	2	100	$\chi^2=2.449$	p= 0.294
	7000-10000	9	32.1	0	0		
	>10,000	7	25.0	0	0		
Residence	Urban	19	67.9	0	0	Fisher exact =3.701	p= 0.126
	Rural	9	32.1	2	100		
Type of family	Joint family	15	53.6	2	100	Fisher exact value=1.639	p=0.313
	Nuclear family	13	46.4	0	0		
Type of food	Vegetarian	3	10.7	0	0	Fisher exact value=0.238	p=0.807
	Non vegetarian	25	89.3	2	100		
Family history of diabetes mellitus	Yes	13	46.4	2	15	$\chi^2=2.143$	p=0.143
	No	15	53.6	15	50		

Table 10- shows the association between the level of reduction of FBS and their demographic variables. Antenatal mother with GDM between the age group of 20-25 show the marked reduction of FBS than the others. Statistical significance is calculated by using chi square and fisher exact tests.

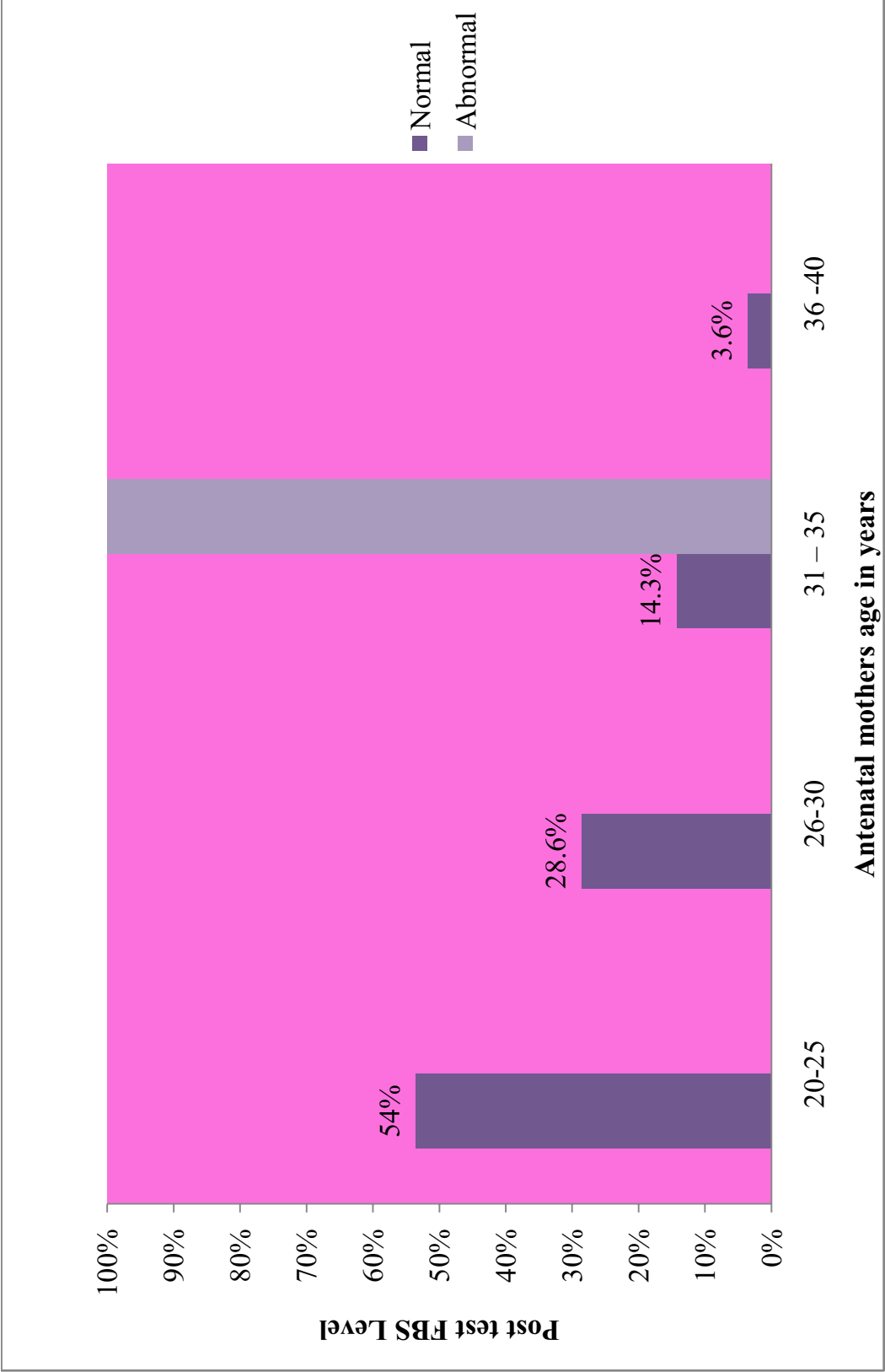


Figure -4.20 Association between reduction of FBS level with the age of antenatal mothers with GDM.

Table-11 Association between the levels of PPBS with demographic variables

Demographic variables		PPBS level				Test values	p value
		Normal <120mg		Abnormal >120mg			
		frequency	in %	frequency	in %		
Age	20-25	7	63.6	8	42.1	$\chi^2=3.696$	p=0.296
	26-30	1	9.1	7	36.8		
	31 – 35	3	27.3	3	15.8		
	36 -40	0	0	1	5.3		
Religion	Hindu	7	63.6	14	73.7	$\chi^2=1.83$	p=0.431
	Christian	3	27.3	5	26.3		
	Muslim	1	9.1	0	0.0		
Education	Primary	5	45.5	9	47.4	$\chi^2=0.969$	p=0.616
	Higher secondary	5	45.5	6	31.6		
	Graduate and others	1	9.1	4	21.1		
Occupation	Home maker	9	81.8	15	78.9	$\chi^2=2.333$	p= 0.312
	Self employment	1	9.1	4	21.1		
	Govt.employee	1	9.1	0	0		
Monthly income	<7000	7	63.6	7	36.8	$\chi^2=2.078$	p= 0.354
	7000-10000	2	18.2	7	36.8		
	>10,000	2	18.2	5	26.3		
Residence	Urban	7	63.6	12	63.2	Fisher exact test=0.001	p= 0.646
	Rural	4	36.4	7	36.8		
Type of family	Joint family	6	54.5	11	57.9	Fisher exact test= 0.032	p= 0.579
	Nuclear family	5	45.5	8	42.1		
Type of food	Vegetarian	1	9.1	2	10.5	Fisher exact test= 0.16	p=0.702
	Non vegetarian	10	90.9	17	89.5		
Family history of diabetes mellitus	Yes	5	45.5	10	52.6	$\chi^2=0.144$	p=0.705
	No	6	54.5	9	47.4		

Table -11 shows the association between the level of reduction of PPBS and their demographic variables. None of the variables are significant. Statistical significance is calculated by using chi square test and fisher exact test.

Table-12 Association of post test FBS with obstetric variables.

		Post_FBS_level				Chi square Value
		Normal <90		Abnormal >90		
		frequency	% within FBS	frequency	% within FBS	
Gravida	Primi	8	28.6	1	50	$\chi^2=0.408$ P=0.523
	Multi gravida	20	71.4	1	50	
Weeks of gestation	20-24 weeks	3	10.7	0	0	$\chi^2=1.639$ P=0.651
	25-28 week	9	32.1	0	0	
	29-32 weeks	15	53.6	2	100	
	32-36 weeks	1	3.6	0	0	
Co-morbid illness	Yes	1	3.6	0	0	$\chi^2=0.074$ P=0.786
	No	27	96.4	2	100	
Weeks of diagnosis	20th week	13	46.4	1	50	$\chi^2=3.023$ P=0.388
	24th week	3	10.7	1	50	
	28th week	7	25	0	0	
	32nd week	5	17.9	0	0	
Treatment for GDM	Diet	8	28.6	1	50	$\chi^2=0.408$ P=0.523
	Insulin	20	71.4	1	50	
Family history of GDM	Yes	1	3.6	0	0	$\chi^2=0.074$ $\chi=0.786$
	No	27	96.4	2	100	

Table-12 shows Association between obstetric variables and post FBS level. None of the variables are significant. Statistical significance is calculated by using chi square test.

Table -13 Associations between the post-PPBS level with Obstetric variables.

Obstetric and treatment related variables		PPBS_				Chi square value
		Normal <120		Abnormal >120		
		count	% with in ppbs	count	%with in ppbs	
Gravida	Primi	4	36.4	5	26.3	$\chi^2=0.35$ P=0.563
	Multi gravida	7	63.6	14	73.7	
Weeks of gestation	20-24 weeks	0	0	3	15.8	$\chi^2=7.934$ P=0.047
	25-28 week	1	9.1	8	42.1	
	29-32 weeks	9	81.8	8	42.1	
	32-36 weeks	1	9.1	0	0	
Comorbid illness	Yes	0	0	1	5.3	$\chi^2=0.599$ P=0.439
	No	11	100	18	94.7	
	not known	5	45.5	6	31.6	
Weeks of diagnosis	20th week	6	54.5	8	42.1	$\chi^2=1.333$ P=0.721
	24th week	2	18.2	2	10.5	
	28th week	2	18.2	5	26.3	
	32nd week	1	9.1	4	21.1	
Treatment for GDM	Diet	4	36.4	5	26.3	$\chi^2=0.335$ P=0.563
	Insulin	7	63.6	14	73.7	
Family history of GDM	Yes	0	0	1	5.3	$\chi^2=0.599$ P=0.439
	No	11	100	18	94.7	

Table- 13 shows the association between the post PPBS level with obstetric variables. Weeks of gestation between 29-32 weeks of antenatal mother with gestational diabetes show the reduction in post PPBS level. Statistical significance is calculated by using chi square test.

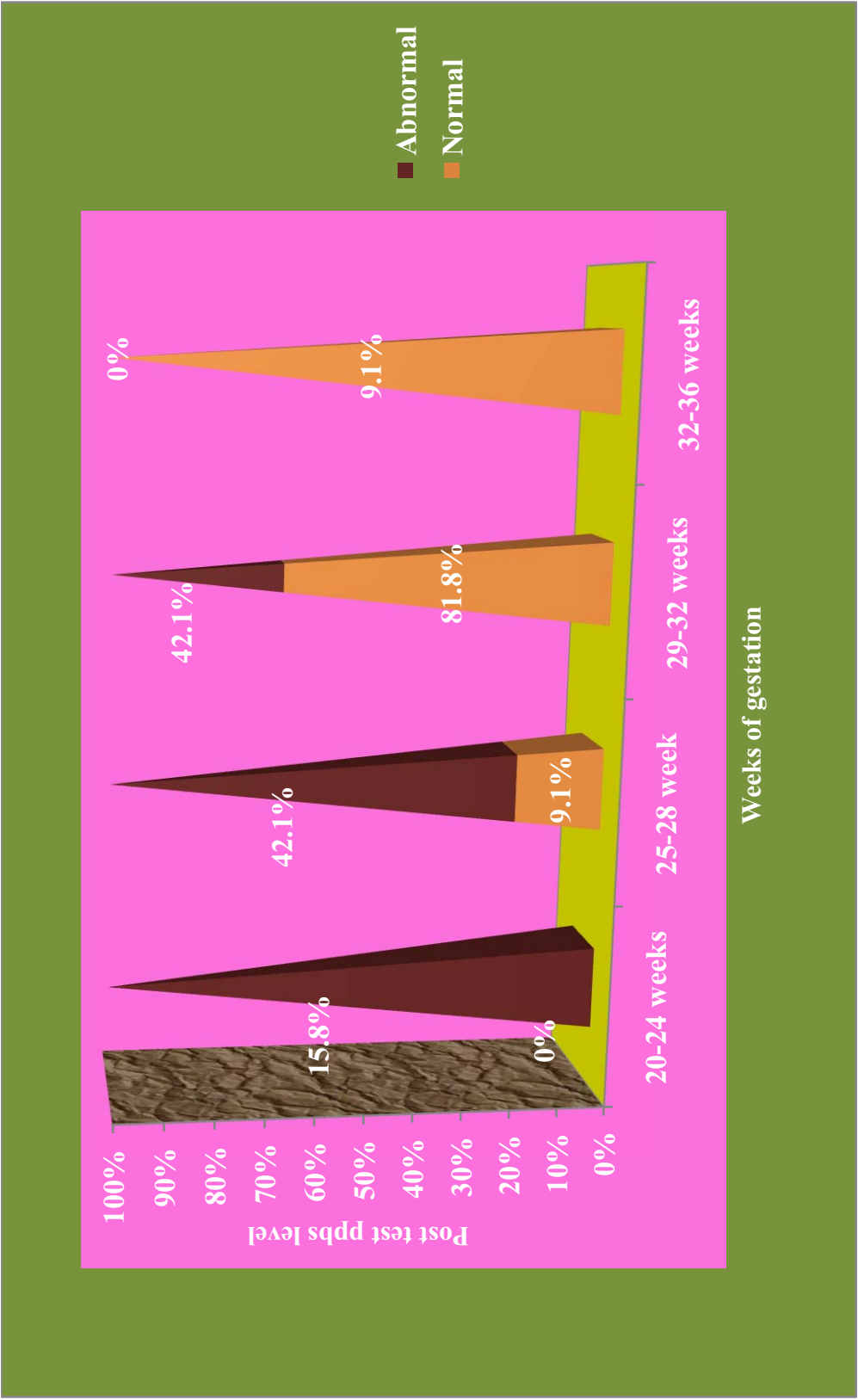


Figure-4.21 Association between reduction of PPBS level with weeks of gestation.

**SUMMARY
OF
RESULTS**

CHAPTER-V

SUMMARY OF RESULTS

The study results were obtained through the descriptive statistics like mean, standard deviation frequency distribution and percentage, and inferential statistics like chi square, Fisher exact and paired 't' test. This chapter deals with the findings of study results.

Findings of the demographic variables:

- ♣ **In the experimental group**, majority of the subjects 53.3% were between 20-25 years of age and 26-30 years of age 27% and 31-35 years of age 20% (6), 36-40 years of age 3.3%(1).
- ♣ Most of the participants(70%) belonged to Hindu **religion** . Majority of the participants 46.7%(14) have completed primary **education**.
- ♣ With regards to the occupational status, majority of the subjects (80 %) were homemakers and most of them (47 %) belonged to **low income status**.
- ♣ According to the residential status most of them (63.3%)were lived in **urban areas**. Majority of the subjects (56.7%) were in **joint family** .
- ♣ With regard to dietary pattern, majority of them (90%) were **non vegetarian** and 50% of the subjects were having the family history of diabetes mellitus.
- ♣ **In control group**, majority of the subjects (53.3 %)were between **the age group of 20-25 years** of age and most of them (57%) belonged to Hindu religion. Majority of the subjects (67%) have completed **primary education**.

- ♣ In terms of occupational status most of the subjects (73.3 %) were homemakers. Most of the subjects(60 %) belonged to **low income status** and most of them(57%) were lived in **urban areas**. Majority of the subjects (60 %)were in **nuclear family**.
- ♣ With regards to dietary pattern, most of them were (80 %) **non vegetarian** and 63.3% (19) of the subjects have the **family history of diabetes mellitus**.

Findings of Obstetric variables;

- ♣ **In experimental group**, majority of the subjects (70 %) were 2nd gravida and most of them (57%) were of 29-32 weeks of gestation.
- ♣ According to their knowledge about the meaning and complications of Gestational diabetes mellitus, majority of the subjects (53.3%) responded to gestational diabetes as , increased blood sugar during pregnancy and most of them(43.3%) were aware of the complications of big baby, congenital anomaly and fetal loss.
- ♣ With regards to the diagnosis of gestational diabetes mellitus, majority of them(46.7%) were diagnosed at 20th week of gestation and most of the subjects (70 %) were on insulin treatment.
- ♣ With regards to family history of gestational diabetes, majority of them (96.7%) do not have the family history of gestational diabetes.
- ♣ According to the knowledge about the alternative therapy for gestational diabetes 50% of them were got the knowledge and 60% of them were known about the health benefits of lady's finger .

- ♣ **In control group** majority of the subjects (56.7 %) were 2nd gravid and majority of them (56.7%) were of 28-32 weeks of gestation
- ♣ According to the knowledge about the meaning and complications subjects (46.7%) responded to gestational diabetes with increased blood sugar level and most of them (43.3%) were not aware of the complications of gestational diabetes.
- ♣ Majority of them (73.3%) were diagnosed as gestational diabetes at the 20th week of gestation and most of them (80 %) were on insulin treatment.
- ♣ With regards to family history of gestational diabetes, majority of them(96.7%)do not have the family history of gestational diabetes .
- ♣ According to the knowledge on alternative therapies 56.7% of them had no knowledge about the alternative therapy for gestational diabetes and 53.3% of them were known about the health benefits of lady's finger, 43.3% of them were told that the lady's finger is useful in reducing blood sugar level.

Knowledge of Gestational diabetes mothers regarding the complications of uncontrolled blood sugar.

In experimental group most of the subjects (53.3%) have responded to gestational diabetes with increased blood sugar level and most of them(43.3%) were aware of the complications of big baby, congenital anomaly and fetal loss due to gestational diabetes .

Majority of them (36.7 %). have told that the lady's finger is useful in reducing blood sugar level.

In control group most of the subjects (46.7%) were responded gestational diabetes as increased blood sugar level and majority of them(43.3%) are said that they were not known about the complications of gestational diabetes.

Majority of them(56.7%) have no knowledge about the alternative therapy for gestational diabetes and 53.3% of them were known about the health benefits of lady's finger.

Most of them (43.3%) have told that the lady's finger is useful in reducing blood sugar level.

Findings of mean comparison of pre-test and post test value between experimental and control group:

- ❖ The mean FBS value of experimental group in pre test (110.07 ± 23.62) and in post test (90.93 ± 9.19). This shows the decline in the mean FBS value in the experimental group due to the administration of lady's finger water.
- ❖ The mean PPBS value of the experimental group in the pre-test (152 ± 17.11) and in the post test PPBS (124.90 ± 12.81). This shows the decline in the mean PPBS value in the experimental group due to the administration of lady's finger water.
- ❖ The results revealed post- test mean FBS and PPBS level was reduced in experimental group. $p = 0.001$. The level of significance is high in experimental group. This shows the lady's finger water is effective in reducing blood sugar level in the experimental group.

Findings in effectiveness of soaked ladies finger water.

- ❖ After the administration of soaked lady's finger water, the FBS level got reduced by 17.4% and the PPBS level got reduced by 17.9%. Differences between pre-test and post-test score was analyzed by using mean difference with 95% CI (confidence interval)..

Association between selected variables and blood sugar levels:

- ❖ Based on the age of the 15 subjects between the age group of 20-25 reported 53.6% reported reduction in blood glucose level with $\chi^2=8.571$, **p=0.036***. There is a significant association between age and FBS level in experimental group.

Based on the weeks of gestation 29-32 weeks of gestation age group antenatal mothers reported 81.8% reduction of blood glucose level with $\chi^2=7.934$, **p=0.047***. There is a significant association between the PPPBS and weeks of gestation.

DISCUSSION

CHAPTER –VI DISCUSSION

This chapter concentrates on the findings of this study derived from the statistical analysis and its pertinence to the objectives set for the study. The purpose of the study was to assess the effectiveness of soaked lady's finger water in reducing blood glucose level among antenatal mothers with gestational diabetes mellitus in 'Institute of Obstetrics and Gynaecology and Hospital for Women and Children' , Chennai.

Sixty subjects of Antenatal mothers with Gestational Diabetes Mellitus were selected by simple randomized sampling technique and assigned to experimental and control group 30 for each on the basis of inclusion criteria.

Semi structured questionnaire was used to gather information from the subjects of both group with gestational diabetes mellitus. Blood glucose level and obstetric related histories were assessed in both groups before intervention. Then soaked lady's finger water was given to the experimental group with hospital routine care and procedures carried out for control group. After that post intervention blood glucose level was assessed by using the same tool (FBS and PPBS). Data collection was done with the permission of institutional ethics committee.

Findings based on the objectives;

The first objective is to assess the fasting and postprandial blood glucose level among the experimental group and control group.

The study results revealed the mean FBS value of the experimental group in the pre- test (110.7),in post- test (90.93)and the mean PPBS value of the experimental group in the pre- test(152.27),in post test(124.90). This showed the

decline in the mean FBS and PPBS value in the experimental group due to the administration of lady's finger water.

This findings of the study result is consistent with **Mrs.S.Sarika Davis (2014)** study on effectiveness of Lady's finger Juice in the Control of Blood Sugar Among clients with diabetes. The results revealed the mean FBS value of the experimental group in the pretest (219.3 ± 69.3), post test 1 on 7day (199 ± 67.9), and post test 2 on the 11day (189.45 ± 67.2). This shows the decline in the mean FBS value in the experimental group due to the administration of lady's finger juice.³³

The second objective is to compare the effectiveness of soaked lady's finger water on fasting and postprandial blood glucose level among experimental and control group.

Considering FBS :

The mean FBS value of experimental group in pre test (110.07 ± 23.62) and in post test (90.93 ± 9.19). This shows the decline in the mean FBS value in the experimental group due to the administration of lady's finger water.

Considering PPBS:

- ❖ The mean PPBS value of the experimental group in the pre-test (152 ± 17.11) and in the post test PPBS (124.90 ± 12.81). This shows the decline in the mean PPBS value in the experimental group due to the administration of lady's finger water.
- ❖ The results revealed post- test FBS and PPBS level in experimental group was significantly lower than the post –test level of FBS and PPBS in control group that means $p=0.001$ the level of significant respectively . The statistical significance is high. This shows the lady's finger water is effective in reducing blood sugar level in the experimental group.

This finding of the study result is consistent with **K wok.K (2009)** study on effects of viscous soluble dietary fibers of *Abelmoschus esculentus* L (Lady's finger) in lowering intestinal glucose absorption. Diffusion systems were observed compared to control in a concentration-dependent manner ($P < 0.05$) which implicates a possible potential role of viscous soluble dietary fiber (VSDF) of fruits of *Abelmoschus esculentus* L in lowering postprandial serum glucose.³²

The third objective is to determine the effectiveness of soaked lady's finger water in reducing blood glucose level among experimental group.

In this study, on comparing FBS, the blood sugar level got reduced by 17.4% and in PPBS, the blood sugar level got reduced by 17.9% than pre-test

Considering the experimental group, post –test FBS level and PPBS level, the subjects showed the effectiveness of lady's finger water.

This findings of the study result is consistent with **Siva shankari (2015)** study to assess the effectiveness of lady's finger extract on control of blood sugar level among typeII diabetes mellitus. This study results revealed, in experimental group, patients are reduced by 14.7% of FBS than pre-test and patients are reduced by 15.2% of PPBS than pre test.

Hypothesis 1 states that there is a significant difference between the post-test glucose level of Gestational diabetes mothers in the experimental and control group after the administration of lady's finger water.

The fourth objective is to associate the level of blood glucose level with selected socio demographic and obstetric variables.

In this study there was a significant association between the level of reduction FBS and age. Based on the age group of 20-25 years

($\chi^2=8.571, p=0.036^*$) and there is a significant association between the level of reduction of PPBS and their obstetric variable such as the weeks of gestation 29-32 weeks of gestation ($\chi^2=7.934 p=0.047^*$)

This findings of the study is consistent with the another study results. The results revealed that there was a significant association of pre-test blood sugar value of the experimental and control group with selected demographic variables such as age, $\chi^2 = 12.2 (P \leq 0.05)$, education ($\chi^2=10.2, p<0.05$), religion ($\chi^2=0.83, p<0.05$), income ($\chi^2=16.8, p<0.05$), family history of DM ($\chi^2=0.60, p<0.05$), treatment followed ($\chi^2=9.8, p<0.05$)³³. **(Mrs. S. Sarika Davis-2014)**

Hypothesis 2 states that there is a significant association of the mean blood sugar reading with selected demographic and obstetric variables. Hence hypothesis was accepted.

**CONCLUSION
AND
RECOMMENDATION**

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39.

APPENDICES

INSTITUTIONAL ETHICS COMMITTEE
MADRAS MEDICAL COLLEGE, CHENNAI-3

EC Reg No.ECR/270/Inst./TN/2013
Telephone No. 044 25305301
Fax : 044 25363970

CERTIFICATE OF APPROVAL

To
Mrs. S.PALANIAMMAL
M.Sc., (Nursing)
College of Nursing
Madras Medical College,
Chennai - 600 003.

Dear Mrs. S.PALANIAMMAL,

The Institutional Ethics Committee has considered your request and approved your study titled **A STUDY TO ASSESS THE EFFECTIVENESS OF SOAKED LADIES FINGER WATER IN REDUCING THE BLOOD SUGAR LEVEL AMONG ANTENATAL MOTHERS WITH GESTATIONAL DIABETES MELLITUS, IN GOVT INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND HOSPITAL FOR WOMEN AND CHILDREN, EGMORE. No.05102014.**

The following members of Ethics Committee were present in the meeting held on 21.10.2014 conducted at Madras Medical College, Chennai-3.

- | | |
|--|----------------------|
| 1. Dr.C.Rajendran, M.D., | : Chairperson |
| 2. Dr.R.Vimala, M.D., Dean, MMC, Ch-3 | : Deputy Chairperson |
| 3. Prof.B.Kalaiselvi, M.D., Vice-Principal, MMC, Ch-3 | : Member Secretary |
| 4. Prof.R.Nandhini, M.D., Inst.of Pharmacology, MMC | : Member |
| 5. Prof.K.Ramadevi, Director i/c, Inst.of Biochemistry, MMC | : Member |
| 6. Prof.Saraswathy, M.D., Director, Pathology, MMC, Ch-3 | : Member |
| 7. Prof.S.G.Sivachidambaram, M.D., Director i/c,
Inst.of Internal Medicine, MMC | : Member |
| 8. Dr.Raghumani, M.S., Professor of Surgery, MMC | : Member |
| 9. Thiru S.Rameshkumar, Administrative Officer | : Lay Person |
| 10.Thiru S.Govindasamy, B.A., B.L., | : Lawyer |
| 11.Tmt.Arnold Saulina, M.A., MSW., | : Social Scientist |

We approve the proposal to be conducted in its presented form.

The Institutional Ethics Committee expects to be informed about the progress of the study and SAE occurring in the course of the study, any changes in the protocol and patients information/informed consent and asks to be provided a copy of the final report.


Member Secretary, Ethics Committee

CERTIFICATE FOR CONTENT VALIDITY

This is to certify that the tool constructed by **Ms. S.Palaniammal** M.Sc.Nursing II year, College of Nursing, Madras Medical College, which is used in her study title **“A STUDY TO ASSESS THE EFFECTIVENESS OF SOAKED LADIES FINGER WATER IN REDUCING THE BLOOD SUGAR LEVEL AMONG ANENATAL MOTHERS WITH GESTATIONAL DIABETES MELLITUS, AT INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND GOVT. HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI -8”** has been validated by the undersigned. The suggestions and modifications given by me will be incorporated by the investigator in concern with their respective guide. Then she can proceed to do the research.


SIGNATURE WITH SEAL

Name : Kanagaralli P
Designation : Reader ,
Date : 16/7/15
Place : Chennai.



CERTIFICATE FOR CONTENT VALIDITY

This is to certify that a tool prepared by **Ms. S.Palaniammal** studying M.Sc. Nursing II year, College of Nursing, Madras Medical College, undertaking a Research study on topic **“A STUDY TO ASSESS THE EFFECTIVENESS OF SOAKED LADIES FINGER WATER IN REDUCING THE BLOOD SUGAR LEVEL AMONG ANENATAL MOTHERS WITH GESTATIONAL DIABETES MELLITUS, AT INSTITUTE OF OBSTETRICS AND GYNAECOLOGY AND GOVT. HOSPITAL FOR WOMEN AND CHILDREN, EGMORE, CHENNAI -8”** has been validated by me and is found to be valid upto date and she can proceed with this tool to conduct the main study.


SIGNATURE WITH SEAL

*Assistant Surgeon
I.O.G. & Government Hospital
For Women and Children
Egmore, Chennai-8.*

Name : *Dr. CP. SRINATH.*
Designation : *ASST PROFESSOR.*
Date : *23/7/15*
Place : *Chennai.*

Ref.No.4673/P&D/2015

IOG and Government Hospital for
Women and Children, Egmore,
Chennai 8, Dated 1.7.2015


Sub : Training - M.Sc., (N) II year., Obstetrics and Gynaecological Nursing –
Clinical Practice, Dissertation, practical examination and Lecture training
in the IOG and Government Hospital for Women and Children, Egmore,
Chennai 8 for the period from 6.7.2015 to 5.8.2015-Permission - orders
issued

Ref : Letter dated 24.6.2015 of the Head of Department, O&G Nursing, College
of Nursing, Madras Medical College, Chennai 3.

+++++

As per the letter reference cited, the following M.Sc (N) II years students of
Madras Medical College, Chennai 3 are permitted to undergo the clinical experience,
lecture classes, University practical examination and also to carryout dissertation work
in IOG and Government Hospital for Women and Children, Egmore, Chennai 8 for the
period from 6.7.2015 to 5.8.2015 under the guidance of the Assistant Professor of
O&G mentioned against their names.

Sl.No	Name of the Students	Name of the Assistant Professor of O&G of this Hospital
1	Mrs. A.Bhuvaneswari	Dr. M.Geetha
2.	Mrs.A.Josephine Carmel Rani	Dr.Nalina
3.	Mrs. Kalavathy Padmanaban	Dr.P.Priyadarshini
4.	Mrs.Kaliyaperumal Ananthi	Dr.K.priyadarshini,
5.	Mrs.Naidu Merita Mohanraj	Dr.M. Thangamani
6..	Mrs. Palaniammal	Dr.Sumathy
7.	Mrs. Princy Fernando	Dr.K. Abiramavalli
8.	Mrs..S.Jayashree	Dr.D. Shanthi Sivakumar


Director and Superintendent
Institute of Obstetrics and
Gynaecology and Govt. Hospital
for Women and Children,
EGMORE, MADRAS-8

To

The Individuals concerned

Copy to

Dr.M Geetha, Assistant Professor of O&G , IOG and Government
Hospital for Women and Children, Egmore, Chennai 8

DATA COLLECTION PROCEDURE

After obtaining permission from concerned authority and informed consent from the samples, the investigator personally assess the effectiveness of soaked lady's finger water in reducing blood sugar level among antenatal mothers with gestational diabetes. Inclusion criteria was followed for sample selection. Information about the study was given to the subjects and informed consent was obtained in the prescribed form. The investigator assured the confidentiality. Subjects selected for the pilot study were excluded. 60 subjects were selected by simple random sampling technique 30 per each experimental and control group. Pre- test by fasting and postprandial blood sugar was determined. Data was collected from the subjects. Soaked lady's finger water was given. In this study lady's finger water prepared by one medium sized lady's finger (approximately 10 cm) slit into halves vertically and soaked in 150 ml of water over night. The gestational diabetic client were instructed to consume this water (after discarding the lady's finger) in empty stomach .

Indications

Antenatal mothers with gestational diabetes mellitus who are selected in experimental group.

Contraindications

Unconsciousness

Sinusitis

Respiratory problems

Pregnancy induced hyper tension

Duration

Five consecutive days.

Time

Early morning in empty stomach at 7.30 am.

Steps for preparing soaked lady's finger water

- Establish rapport with the clients.
- Assess the blood sugar level before giving soaked lady's finger water.
- Giving soaked lady's finger water for five consecutive days.
- Assess the blood sugar level after giving soaked lady's finger water.

Part-A

DEMOGRAPHIC PROFILE

1.Age in years

- a)20-25 years ()
- b) 26-30 years ()
- c) 31 – 35 years ()
- d) 36-40 years ()

2.Religion

- a) Hindu ()
- b) Christian ()
- c) Muslim ()
- d) Others ()

3.Education

- a) Un educated ()
- b) Primary ()
- c) Higher secondary ()
- d) Graduate and others ()

4. Occupation

- a) Home maker ()
- b) Self employment ()
- c) Govt.employee ()

5.Family income

- a) <7000 ()
- b) 7000-10000 ()
- c) >10,000 ()

6. Residence

a) Urban ()

b) Rural ()

7. Type of family

a) Joint family ()

b) Nuclear family ()

8. Dietary pattern

a) vegetarian ()

b) Non vegetarian ()

9. Family history of diabetes mellitus

a) yes ()

b) No ()

10. If yes specify the relationship

a) Mother ()

b) Father ()

c) Blood relatives ()

PART –B

Obstetric variables

1. Gravida

- a) Primi ()
- b) Multi gravida ()

2. History of any comorbid illness

- a) yes ()
- b) No ()

3. Weeks of gestation

- a) 20-24 weeks ()
- b) 25-28 weeks ()
- c) 29-32 weeks ()
- d) 33-36 weeks ()

6. Gestational diabetes diagnosed through

- a) Fasting blood sugar ()
- b) Postprandial blood sugar ()
- c) Oral glucose challenge test ()
- d) Urine sugar test ()

.7 Gestational diabetes diagnosed at

- a) 20th week of pregnancy ()
- b) 24th week of pregnancy ()
- c) 28th week of pregnancy ()
- d) 32nd week of pregnancy ()

8.Treatment for gestational diabetes

- a)Diet ()
- b)Exercise ()
- c)Home remedy ()
- d)Insulin ()

11.Family history of gestational diabetes

- a)yes ()
- b)No ()

PART-C

Knowledge of gestational diabetes mothers regarding the complications of uncontrolled blood sugar

1. Meaning of gestational diabetes mellitus

- a) increased blood sugar level during pregnancy ()
- b) increased sugar level before pregnancy ()
- c) increased starch level ()
- d) not known ()

2. complications of gestational diabetes

- a) Big baby, congenital anomaly, fetal loss ()
- b) Small baby ()
- c) Haemorrhage ()
- d) Not known ()

3. Knowledge about alternative therapies in reducing blood sugar

- a) yes ()
- b) No ()

If yes ,specify _____

Source of information _____

4. Health benefits of lady's finger

- a) yes ()
- b) no ()

if yes mention _____

பகுதி - அ r_ffhuÂfÿ

- 1.வயது
(அ) 20 முதல் 25 வரை ()
(ஆ) 26 முதல்30 வரை ()
(இ) 31 முதல்35 வரை ()
(ஈ) 36 முதல் 40 வரை ()
- 2.மதம்
(அ) இந்து ()
(ஆ) கிறித்தவர் ()
(இ) முஸ்லிம் ()
- 3.கல்வி விவரம்
(அ) படிக்காதவர் ()
(ஆ) ஆரம்ப நிலைக் கல்வி ()
(இ) மேல்நிலைக் கல்வி ()
(ஈ) பட்டப் படிப்பு ()
- 4.தொழில் விவரம்
(அ) இல்லத்தரசி ()
(ஆ) சுயதொழில் செய்பவர் ()
(இ) வேலைக்குச் செல்லாதவர் ()
- 5.மாத வருமானம்
(அ) ரூ 7000/- கீழ் ()
(ஆ) ரூ 7000 லிருந்து 10,000/- வரை ()
(இ) ரூ 10,000க்கு மேல் ()
- 6.இருப்பிடம்
(அ) நகரம் ()
(ஆ) கிராமம் ()
- 7.குடும்ப வகை
(அ) தனிக் குடும்பம் ()
(ஆ) கூட்டுக்குடும்பம் ()
- 8.உணவு பழக்க முறை
(அ) சைவம் ()
(ஆ) அசைவம் ()
9. குடும்ப நபர்களுக்கு நீரிழிவு நோய் உள்ளதா

(அ)ஆம் ()
(ஆ)இல்லை ()
10. இருப்பின் உறவுமுறையை குறிப்பிடுக
(அ)அம்மா ()
(ஆ)அப்பா ()
(இ)இரத்த உறவுமுறை ()

பகுதி - ஆ
(மகப்பேறு சார்ந்த தகவல்)

1.பேறுகால எண்ணிக்கை

- அ)முதல் பேறுகாலம் ()
ஆ)ஒன்றுக்குமேற்பட்டபேறுகாலம் ()

2. வேறு உடல் சார்ந்த நோய் பற்றிய தகவல்

- அ)ஆம் ()
ஆ)இல்லை ()

3.கருத்தரித்ததிலிருந்து தற்போதைய மாதம்

- அ)20லிருந்து 24 வாரம் ()
ஆ)25லிருந்து 28 வாரம் ()
இ)29 லிருந்து 32 வாரம் ()
ஈ)33 லிருந்து 36 வாரம் ()

4. கர்பகால நீரிழிவு நோய் அறியப்பட்டமுறை

- அ)உணவுக்குமுன் இரத்தசர்க்கரை பரிசோதனை ()
ஆ)உணவுக்கு பின் இரத்தசர்க்கரை பரிசோதனை ()
இ)குலுகோஸ் குடித்தபின் ரத்த சர்க்கரை பரிசோதனை ()
ஈ)சிறுநீரில் சர்க்கரை பரிசோதனை ()

5. கர்பகால நீரிழிவு நோய் கண்டறியப்பட்ட வாரம்

- அ)20 வது வாரம் ()
ஆ)24வதுவாரம் ()
இ)28வது வாரம் ()
ஈ)32வதுவாரம் ()

6. கர்பகால நீரிழிவு நோய்க்காக பின்பற்றும்மருத்துவ முறை

- அ)உணவுக்கட்டுப்பாடு ()
ஈ)இன்சலின் ()

7 .குடும்ப நபர்களுக்கு கர்பகால நீரிழிவு நோய் இருந்தது பற்றி

- அ)ஆம் ()
ஆ)இல்லை ()

பகுதி-இ
(mçîrh® jftšfÿ)

1.கர்பகால நீரிழிவு நோயின் அர்த்தம்

- அ)கர்பகாலத்தில் இரத்த சர்கரையின் அளவு அதிகரித்தல் ()
- ஆ)கர்பகாலத்திற்கு முன்பே இரத்த சர்கரையின் அளவு அதிகரித்தல்()
- இ)மாவுசத்து அதிகரித்தல் ()
- ஈ)தெரியவில்லை ()

2 . கர்பகால நீரிழிவு நோயின் பாதிப்புகள்

- அ)எடை அதிகமுள்ளகுழந்தை,குறைபாடுள்ளகுழந்தை, குழந்தையின்இறப்பு ()
- ஆ)எடை குறைவான குழந்தை ()
- இ)பிரசவதிற்குமுன் அதிக உதிரப்போக்கு ()
- ஈ)தெரியவில்லை ()

3. கர்பகால நீரிழிவு நோயை குணப்படுத்த வேறு மருத்துவமுறைஇருப்பின்

- அ)ஆம் ()
- ஆ)இல்லை ()

ஏதேனும் இருப்பின்குறிப்பிடுக_____

அத்தகவல் அறிந்து கொண்ட விதம் _____

4 .வெண்டைக்காயின்மருத்துவபயன்பாடு

- அ)ஆம் ()
- ஆ)இல்லை ()

ஆம் என்றால்குறிப்பிடுக_____

INFORMED CONSENT

Investigator : S.Palaniammal

Name of Participant :

Age/sex :

Date :

Name of the institution: Institute of Obstetrics &Gynaecology, Chennai.

Title :“A study to assess the effectiveness of soaked lady’s finger water in reducing blood sugar level among Antenatal mothers with Gestational diabetes mellitus in ‘Institute of Obstetrics &Gyanecology and Government Hospital for Women and Children’, Chennai.”

Documentation of the informed consent: (legal representative can sign if the participant is minor or competent).

- I _____ have read/it has been read for me, the information in this form. I was free to ask any questions and they have been answered, hereby give my consent to be included as a participant in the study.
- I have read and understood this consent form and the information provided to me.
- I have had the consent document explained in detail to me.
- I have been explained about the nature of my study.
- My rights and responsibilities have been explained to me by the investigator.
- I agree to cooperate with the investigator
- I have not participated in any research study at any time.
- I am aware of the fact that I can opt out of the study at any time without having to give any reason
- I hereby give permission to the investigators to release the information obtained from me as a result of participation in this study to the regulatory

authorities, government agencies and Institutional ethics committee. I understand that they are publicly presented.

- My identity will be kept confidential if my data are publicly presented.
- I am aware that I have any question during this study; I should contact the concerned investigator.

Signature of Investigator

Signature of Participants

Date

Date

சுய ஒப்புதல் படிவம்

ஆய்வு தலைப்பு:

கர்ப்பகால நீரிழிவு நோயினால் பாதிக்கப்பட்ட கர்பிணிப் பெண்களின் இரத்த சர்க்கரை அளவை ஊரவைத்த வெண்டைக்காய் நீர் மூலம் குறைப்பதற்கான தீர்மானய்வு.

பெயர்: வயது: தேதி: வெளிநோயளி எண்:

..... என்பவராகிய நான் இந்த ஆய்வின் விவரங்களும் அதன் நோக்கங்களும் முழுமையாக அறிந்து கொண்டேன். எனது சந்தேங்கள் அனைத்திற்கும் தகுந்த விளக்கம் அளிக்கப்பட்டது. இந்த ஆய்வில் முழு சுதந்திரத்துடன் மற்றும் சுயநினைவுடன் பங்கு கொள்ள சம்மதிக்கிறேன்.

எனக்கு விளக்கப்பட்ட விஷயங்களை நான் புரிந்து கொண்டு நான் எனது சம்மதத்தை தெரிவிக்கிறேன். இச்சுய ஒப்புதல் படிவத்தை பற்றி எனக்கு விளக்கப்பட்டது.

இந்த ஆய்வினை பற்றிய அனைத்து தகவல்களும் எனக்கு தெரிவிக்கப்பட்டது. இந்த ஆய்வில் எனது உரிமை மற்றும் பங்கினை பற்றி அறிந்து கொண்டேன்.

இந்த ஆய்வில் பிறரின் நிர்பந்தமின்றி என் சொந்த விருப்பத்தின் பேரில் தான் பங்கு பெறுகிறேன் மற்றும் நான் இந்த ஆராய்ச்சியிலிருந்து என்னேரமும் பின்வாங்கலாம் என்பதையும் அதனால் எந்த பாதிப்பும் ஏற்படாது என்பதையும் நான் புரிந்து கொண்டேன்.

இந்த ஆய்வில் கலந்து கொள்வதன் மூலம் என்னிடம் பெறப்படும் தகவலை ஆய்வாளர் இன்ஸ்டிடியூசனல் எத்திக்ஸ் கமிட்டியினிடமோ, அரசு நிறுவனத்தினிடமோ தேவைப்பட்டால் பகிர்ந்து கொள்ளலாம் என சம்மதிக்கிறேன்.

இந்த ஆய்வின் முடிவுகளை வெளியிடும்போது எனது பெயரோ, அடையாளமோ வெளியிடப்படாது என அறிந்து கொண்டேன். இந்த ஆய்வின் விவரங்களைக் கொண்ட தகவல்தாளைப் பெற்றுக் கொண்டேன். இந்த ஆய்விற்காக இரத்தப் பரிசோதனை செய்து கொள்ள சம்மதிக்கிறேன்.

இந்த ஆய்வில் பங்கேற்கும் பொழுது ஏதேனும் சந்தேகம் ஏற்பட்டால், உடனே ஆய்வாளரை தொடர்பு கொள்ள வேண்டும் என அறிந்து கொண்டேன்.

இச்சுய ஒப்புதல் படிவத்தில் கையெழுத்திடுவதன் மூலம் இதிலுள்ள அனைத்து விஷயங்களும் எனக்கு தெளிவாக விளக்கப்பட்டது என்று தெரிவிக்கிறேன் என்று புரிந்து கொண்டேன். இச்சுய ஒப்புதல் படிவத்தின் ஒரு நகல் எனக்கு கொடுக்கப்படும் என்று தெரிந்து கொண்டேன்.

பங்கேற்பாளர்/பாதுகாவலர் கையொப்பம்

தேதி :

ஆய்வாளர் கையொப்பம்

தேதி :

ஆய்வினால் ஏற்படும் நன்மைகள்

இந்த ஆய்வில் கலந்து கொள்வதன் மூலம் நீங்கள் நோயின் தன்மையில் முன்னேற்றம் பெறலாம். மேலும் வருங்காலத்தில் பிறநோயாளிகளும் பயன்பெற இந்த ஆய்வு உதவியாக அமையும்.

மருத்துவ சிகிச்சையின் தகவல்கள் குறித்த விவரங்கள்

உங்கள் மருத்துவ சிகிச்சை குறித்த தகவல்கள் ரகசியமாக பாதுகாக்கப்படும் (பெயர், மருத்துவ பரிசோதனை முடிவு, மருத்துவ ஆய்வு முடிவு) இந்த தகவல்தாளில் கையெழுத்திடுவதின் மூலம் உங்களை பற்றிய குறிப்புகளோ, எடுத்து கொண்ட சிகிச்சை முறையை பற்றியோ ஆய்வாளரோ இன்ஸ்டிடியூசன் எத்திக்கல் கமிட்டியை சார்ந்தவர்களோ தேவைப்பட்டால் அறிந்து கொள்ளலாம் என்று சம்மதிக்கிறீர்கள். முடிவுகளை அல்லது கருத்துக்களை வெளியிடும் போதோ அல்லது ஆய்வின் போதோ தங்களது பெயரையோ அல்லது அடையாளங்களையோ வெளியிடமாட்டோம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

இந்த ஆய்வில் பங்கேற்காவிட்டாலும் நீங்களும் வழக்கமான சிகிச்சையை தொடர்ந்து பெறலாம்.

இந்த ஆய்வில் பங்கேற்பது தங்களுடைய விருப்பத்தின் பேரில் தான் இருக்கிறது. மேலும் நீங்கள் எந்நேரமும் ஆய்விலிருந்து பின்வாங்கலாம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

இந்த சிறப்பு சிகிச்சையின் முடிவுகளை ஆய்வின் போதோ அல்லது ஆய்வின் முடிவின் போதோ தங்களுக்கு அறிவிப்போம் என்பதையும் தெரிவித்துக் கொள்கிறோம்.

ஆய்வாளர் கையொப்பம்
கையொப்பம்

பங்கேற்பாளர்/பாதுகாள்வலர்

நாள் :

இடம் :

ஆய்வு தகவல் தாள்

ஆய்வு தலைப்பு:

கர்ப்பகால நீரிழிவு நோயினால் பாதிக்கப்பட்ட கர்ப்பிணிப் பெண்களின் இரத்த சர்க்கரை அளவை ஊரவைத்த வெண்டைக்காய் நீர் மூலம் குறைப்பதற்கான திறனாய்வு.

ஆய்வாளர் பெயர்: S. பழனி அம்மாள்

பங்கேற்பாளர் பெயர்:

தேதி: வயது: பாலினம்: ஆண்/பெண்

ஆராய்ச்சி சேர்க்கை எண்:

நான் அரசு தாய்சேய் நல மருத்துவமனையில் கர்ப்பகால நீரிழிவு நோயினால் பாதிக்கப்பட்டு உள் நோயாளிகள் பிரிவில் அனுமதிக்கப்பட்டுள்ள கர்ப்பிணி பெண்களைக்கொண்டு திறனாய்வு மேற்கொள்கிறேன்.

இந்த ஆய்வின் நோக்கம்

கர்ப்ப கால நீரிழிவு நோய் என்பது நீரிழிவு நோயின் ஒரு வகையாகும். நீரிழிவு நோயினால் இரத்த சர்க்கரை அளவு மிகவும் அதிகமாகும். கர்ப்ப காலத்தின் போது சுரக்கும் ஹார்மோன்கள் இன்சலின் சுரப்பதை தடை செய்யும். இன்சலின் ஹார்மோன் உடலின் சர்க்கரை அளவை சரிசெய்ய மிகவும் பயன்படும். இன்சலின் சுரப்பு தடைபடும்போது குடலில் சர்க்கரை அதிகமாக உறிஞ்சப்படுகிறது. இதனால் இரத்தத்தில் சர்க்கரை அளவு அதிகரிக்கிறது.

இந்த ஆய்வில் வெண்டைக்காயில் ஊரவைத்த நீரை கர்ப்பிணிப் பெண்களை பருகச் செய்து குடலில் சர்க்கரை அதிகமாக உறிஞ்சப்படுவதை தடுத்து இரத்தச் சர்க்கரையின் அளவை குறைப்பதற்கான திறனாய்வு மேற்கொள்ளப்படுகிறது.

ஆய்வின் செயல்முறை

இந்த ஆய்வில் கலந்து கொள்பவர்கள் A மற்றும் B என்று இரு குழுக்களாக பிரிக்கப்படுவர். A குழுவில் இருப்பவர்கள் வழக்கமான சிகிச்சை முறையையும் B குழுவில் இருப்பவர்கள் வழக்கமான சிகிச்சையுடன் வெண்டைக்காய் ஊரவைத்த 150 மி.லி தண்ணீரை வெறும் வயிற்றில் 5 நாட்களுக்கு தினமும் காலை குடித்து வரவேண்டும். 5ஆம் நாள் முடிவில் இரத்த சர்க்கரை அளவு குளுகோ மீட்டர் மூலம் A மற்றும் B குழுவில் உள்ளவர்களுக்கு பரிசோதனை செய்யப்படும். இதில் ஒரு சொட்டு அல்லது இரண்டு சொட்டு இரத்தம் மட்டுமே எடுக்கப்படும்.

CERTIFICATE FOR CONTENT VALIDITY

To whom so ever it may concern

This is to certify that the dissertation work "A study to assess the effectiveness of soaked lady's finger water in reducing blood sugar level among Antenatal mothers with Gestational Diabetes Mellitus at the Institute of Obstetrics and Gynaecology and Govt. Hospital for women and children, Chennai" done by Ms.S.Palaniammal. M.Sc (N) II year student, College of Nursing, Madras Medical College, Chennai-03 is edited for English language appropriateness.


Signature with seal 2/2/16

Name : Prof. M. DHANALAKSHMI
Designation : Assistant Professor
Date : 2.2.2016
Place : Chennai 2 600 003

M. DHANALAKSHMI, M.A., M.Phil
Asst. Professor
Dept. of English
Madras Medical College
Chennai - 600 003

control groups	sample1	sample2	sample3	sample4	sample5	sample 6
Age	b	b	a	d	a	a
religion	a	a	a	b	a	a
education	b	b	c	c	c	c
occupation	a	a	a	b	a	a
monthly income	b	a	a	a	b	a
residence	b	a	a	a	a	b
type of family	b	b	b	a	a	b
type of food	b	b	b	b	b	b
gravida	b	b	a	b	b	b
weeks of gestation	c	b	c	a	b	c
comorbid illness	b	b	b	b	b	b
GDM stands for	b	a	a	a	d	a
complications of GDM	b	a	b	a	a	d
Ddiagnosis of GDM	c	c	c	c	c	c
weeks of diagnosis	a	b	a	a	a	a
treatment for GDM	d	d	d	d	d	d
family history of DM	a	a	a	a	a	b
if yes relationship	b	b	b	a	c	
family history of GDM	b	b	b	b	b	b
knowledge about alternative therapy for GDM	b	b	b	a	a	a
If yes what and how?				noni,neighbour	bitterguard,cucumbemohan diabetic ceter	ladies finger,Dr
health benefit of ladies finger	b	a	b	a	a	a
if yes mention		brain growth		braingrowth	reduce sugar	reduce sugar
pre test sugar value						
fasting	105	100	114	104	115	92
postprandial	130	138	142	159	146	148
post test sugar value						
fasting	88	92	90	98	94	90
postprandial	124	118	150	128	116	134

control groups	sample 7	sample 8	sample 9	sample10	sample11	sample 12	sample 13	sample 14
Age	b	a	c	b	a	a	d	b
religion	a	a	a	b	c	a	a	c
education	b	b	b	b	b	c	b	d
occupation	a	a	a	a	a	a	a	a
monthly income	a	a	a	b	a	a	b	a
residence	a	b	b	b	b	b	b	a
type of family	b	a	b	b	a	b	a	b
type of food	b	b	a	b	b	b	b	b
gravida	a	a	b	b	b	c	a	a
weeks of gestation	b	a	c	c	c	b	b	c
comorbid illness	b	b	b	b	b	b	b	b
GDM stands for	a	d	d	d	a	d	a	a
complications of GDM	a	a	c	d	d	d	a	a
Ddiagnosis of GDM	c	c	c	c	c	c	c	c
weeks of diagnosis	a	a	a	a	d	a	a	a
treatment for GDM	d	d	d	d	a	d	d	d
family history of DM	b	a	b	a	b	a	a	a
if yes relationship		a		a		c	a	b
family history of GDM	b	b	b	b	b	b	b	b
knowledge about alternative therapy for GDM	a	a	a	b	b	b	b	a
If yes what and how?	fenugrik,Dr	ladies finger,neighbor	ladies finger,tv				bitter guard,tv	
health benefit of ladies finger	a	a	a	a	b	b	b	a
if yes mention	reduce sugar	reduce sugar	reduce sugar	reduce sugar			reduce sugar	
pre test sugar value								
fasting	128	126	138	124	92	120	99	120
postprandial	170	140	156	170	148	170	147	150
post test sugar value								
fasting	110	101	98	100	128	98	86	92
postprandial	134	126	135	140	170	128	120	118

control groups	sample 15	sample 16	sample 17	sample 18	sample 19	sample 20	sample 21	sample 22	sample 23
Age	b	b	b	a	c	a	a	a	a
religion	a	a	a	a	c	a	b	b	a
education	b	c	b	b	b	b	b	a	b
occupation	a	b	a	a	b	a	b	a	a
monthly income	b	a	a	b	a	a	a	b	b
residence	a	a	a	a	b	b	a	a	a
type of family	a	a	a	b	b	b	b	b	a
type of food	b	b	b	b	b	b	a	b	b
gravida	a	a	a	b	b	b	b	b	c
weeks of gestation	c	c	b	c	c	c	b	a	b
comorbid illness	b	b	b	b	b	b	b	b	b
GDM stands for	a	d	d	a	d	d	d	d	d
complications of GDM	d	d	c	d	d	d	c	d	a
Ddiagnosis of GDM	c	c	c	c	c	c	c	c	c
weeks of diagnosis	b	a	b	b	a	d	b	a	a
treatment for GDM	a	d	d	d	a	d	d	d	a
family history of DM	b	b	a	b	a	b	a	a	b
if yes relationship			b		a,b		a	a	
family history of GDM	b	b	b	b	b	b	b	b	b
knowledge about alternative therapy for GDM	b	a	a	b	b	a	b	b	b
If yes what and how?	b	turnip,tv	ivyguard,tv			bitterguard juice			
health benefit of ladies finger		b	a	b	b	b	a	b	a
if yes mention			reduce sugar				reduce sugar		reduce sugar
pre test sugar value									
fasting	118	105	108	118	120	102	122	102	99
postprandial	142	146	140	153	178	165	178	167	146
post test sugar value									
fasting	84	112	98	102	98	85	96	114	92
postprandial	128	130	120	138	140	134	144	132	120

control groups	sample24	sample25	sample26	sample27	sample28	sample29	sample30
Age	a	b	a	a	a	b	a
religion	b	b	b	b	b	a	b
education	b	b	b	a	b	a	b
occupation	b	a	a	b	a	b	b
monthly income	a	b	b	b	a	b	a
residence	b	a	a	a	b	a	b
type of family	b	a	b	b	a	b	a
type of food	a	b	b	a	a	b	a
gravida	c	a	b	b	b	a	b
weeks of gestation	c	c	b	c	c	b	c
comorbid illness	b	b	b	b	b	b	b
GDM stands for	a	b	c	a	a	d	a
complications of GDM	d	a	d	b	c	c	d
Ddiagnosis of GDM	c	c	c	c	c	c	c
weeks of diagnosis	a	b	a	a	a	a	a
treatment for GDM	a	d	d	a	d	d	d
family history of DM	b	a	a	a	a	b	a
if yes relationship		a	b	b	a		a,b
family history of GDM	b	b	b	a	b	b	b
knowledge about alternative therapy for GDM	b	b	a	b	a	b	a
If yes what and how?			fenugrik,news paper		bitterguard,tv		ivy guard.tv
health benefit of ladies finger	a	b	a	a	a	b	b
if yes mention	brain growth		reduce sugar	reduce sugar	reduce sugar		
pre test sugar value							
fasting	114	112	108	114	105	98	100
postprandial	136	152	132	164	152	176	162
post test sugar value							
fasting	86	96	82	98	94	83	82
postprandial	130	128	128	130	120	118	106

experimental groups	sample1	sample2	sample3	sample4	sample5	sample6	sample7	sample8	sample9	sample10
Age	a	c	b	c	a	c	a	c	c	b
religion	b	a	a	a	a	a	a	a	a	a
education	b	d	c	c	c	c	b	b	c	c
occupation	a	a	a	b	a	a	a	a	b	a
monthly income	b	b	c	c	b	a	b	a	b	b
residence	a	a	a	b	a	b	a	b	a	a
type of family	b	a	a	b	b	a	a	a	a	b
type of food	b	a	b	b	b	b	b	b	b	b
gravida	b	a	b	b	a	a	b	b	a	b
weeks of gestation	c	c	b	d	c	c	c	c	b	b
comorbid illness	b	b	a	b	b	b	b	b	b	b
GDM stands for	a	a	a	a	a	a	a	d	d	a
complications of GDM	a	a	a	a	a	c	d	d	d	d
Ddiagnosis of GDM	c	c	c	c	c	c	c	c	c	c
weeks of diagnosis	d	c	c	a	a	a	c	b	b	b
treatment for GDM	d	d	d	d	d	d	d	a	a	a
family history of DM	a	a	b	b	a	a	a	a	a	a
if yes relationship	b	a			b	a,b,c	a,b	a	a	b
family history of GDM	b	b	b	b	b	b	b	b	b	b
knowledge about alternative therapy for GDM	a	b	b	b	a	a	a	a	b	b
If yes what and how?	bitter guard,TV	ivyguard,TV,Books			ivy guard,TV	ladies finger	fenugrik	fenugrik		
health benefit of ladies finger	b	a	b	a	a	a	a	a	a	a
if yes mention		reduce sugar		reduce sugar	reduce sugar	reduce sugar	reduce sugar	brain growth	brain growth	reduce sugar
pre test sugar value										
fasting	98	103	126	82	114	128	101	186	92	106
postprandial	170	129	149	149	142	170	146	146	148	152
post test sugar value										
fasting	90	94	98	86	90	110	90	110	90	98
postprandial	140	120	140	120	110	134	128	92	126	118

experimental groups	sample 11	sample 12	sample 13	sample 14	sample 15	sample 16	sample 17	sample 18	sample 19	sample 20
Age	d	b	b	b	a	b	b	a	a	a
religion	a	b	b	a	a	a	b	a	a	b
education	b	c	d	b	c	b	c	b	b	c
occupation	a	a	a	a	a	a	a	b	a	d
monthly income	a	a	c	a	c	a	b	a	b	a
residence	b	a	b	b	a	a	b	b	a	a
type of family	a	b	b	b	a	a	a	b	a	a
type of food	b	b	b	b	b	b	b	b	b	b
gravida	a	b	b	a	a	b	b	b	b	b
weeks of gestation	c	c	a	c	c	b	b	a	c	b
comorbid illness	b	b	b	b	b	b	b	b	b	b
GDM stands for	d	a	b	d	a	a	d	a	a	d
complications of GDM	d	c	c	d	a	d	d	a	a	d
Ddiagnosis of GDM	c	c	c	c	c	c	c	c	c	c
weeks of diagnosis	a	d	c	a	a	c	a	a	c	a
treatment for GDM	d	a	a	d	a	d	d	d	d	d
family history of DM	a	a	b	b	a	b	b	a	b	b
if yes relationship	a	b			b			b		
family history of GDM	b	b	b	b	b	b	b	b	b	b
knowledge about alternative therapy for GDM	b	a	b	a	a	b	a	a	b	b
If yes what and how?		bitterguar d		bitter guard	turnip,T V		fenugrik,dietician from GH	fenugrik, GH		
health benefit of ladies finger	b	a	b	a	b	b	b	b	b	b
if yes mention		reduce sugar		reduce sugar			reduce sugar			
pre test sugar value										
fasting	109	160	158	69	96	90	112	105	111	108
postprandial	176	180	168	130	129	178	162	178	178	133
post test sugar value										
fasting	98	100	98	70	80	86	92	78	98	78
postprandial	142	130	130	120	118	128	138	138	128	105

experimental groups	sample 21	sample 22	sample 23	Sample 24	sample25	sample 26	sample 27	sample 28	sample 29	sample 30
Age	a	a	c	a	a	b	a	a	a	a
religion	a	a	a	a	a	a	b	b	b	c
education	d	d	b	b	b	d	c	b	b	b
occupation	a	b	a	a	a	a	a	a	b	a
monthly income	c	c	b	a	a	c	a	a	a	a
residence	a	a	b	a	a	a	a	b	b	a
type of family	b	a	b	a	a	a	a	b	b	b
type of food	b	b	b	b	a	a	b	b	b	b
gravida	a	a	b	b	b	b	b	b	b	b
weeks of gestation	c	a	b	c	b	b	c	c	c	c
comorbid illness	b	b	b	b	b	b	b	b	b	b
GDM stands for	d	d	d	d	b	a	c	a	a	d
complications of GDM	c	d	d	b	a	a	a	d	a	a
Ddiagnosis of GDM	c	c	c	c	c	c	c	c	c	c
weeks of diagnosis	d	a	d	b	a	a	c	d	a	a
treatment for GDM	d	d	a	d	d	d	a	a	d	d
family history of DM	b	b	b	b	a	b	b	a	a	b
if yes relationship					a			a,b	c	
family history of GDM	b	b	a	b	b	b	b	b	b	b
knowledge about alternative therapy for GDM	b	b	a	a	a	b	b	b	a	a
If yes what and how?			ivy guard,TV	fenugrik,neibh bour	bitterguard,news paper				turnip,doctor	fenugrik,known patients
health benefit of ladies finger if yes mention	b	b	b	a	b	b	b	b	b	a
pre test sugar value				reduce sugar						reduce sugar
fasting	110	103	100	90	98	98	102	98	118	113
postprandial	142	149	156	132	146	132	156	130	156	138
post test sugar value										
fasting	98	86	92	86	80	88	86	96	82	98
postprandial	124	134	145	117	130	124	105	111	122	108