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"EFFECT OF DIET COUNSELLING AND EXERCISE ON CONSTIPATION AMONG ANTENATAL MOTHERS."

OBSTETRICS AND GYNECOLOGICAL NURSING

A DISSERTATION SUBMITTED TO

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INTRODUCTION

"PREGNANCY IS A PROCESS THAT INVITES YOU TO SURRENDER TO THE UNSEEN FORCE BEHIND ALL LIFE"

- JUDY FORD

Pregnancy is very crucial event in every woman's life. [(1)] It is time when one or more offspring develops inside the woman's womb. [(2)]During pregnancy there is anatomical, physiological and biochemical changes occur, these changes not only limited to the genital tract but also to all system of the body. [(3)]

These also brings many common symptoms in pregnant mothers like, nausea and vomiting, low back and pelvic pain, heartburn, varicose vein, leg cramps and also constipation.[(4)] among these, constipation is more prevailing during pregnancy and it is the second most common in pregnant mothers. Constipation is occurs in approximately 2.6% to 24.8% in Asia and 40% in pregnant women. [(5)]

The evidence also shown that the prevalence rate of constipation among the women is two-to threefold higher during pregnancy [(6)] Constipation takes place when there is abdominal pain or discomfort, difficult and infrequent bowel movement and also the passage of the hard stool. It is befalling because of some factors that affecting the normal gastrointestinal function. [(7)]

These factors are changing hormones, the internal pressure of uterus, nutritional imbalance, dehydration.[8]Along with these factors**,** there are also some pregnancy related myths that are responsible for the occurrence of constipation during pregnancy. These are like papaya should not eat during the pregnancy as it causes the miscarriage [9] but in reality Papaya contained fibers that help to relieve the constipation during the pregnancy [10] and pregnant mother can eat one or two slice of fully ripe papaya after first trimester [9]

Then other myth is black or dark coloured food should not eat by the pregnant mothers otherwise baby became dark in color. [9] Another is, digestion is least important during pregnancy and pregnant mother should not give more concern to the digestive health but during pregnancy mothers should give more attention toward the gut health in order to minimize the problems related to the digestive tract. [11]

There is exercise related myths also that exercise during pregnancy can harm the baby but in reality exercise during pregnancy relieve discomfort of pregnancy and helps for smooth delivery and also relieve from constipation [9]Because of these myths also pregnant mothers avoiding to eat proper nutrition and prenatal exercise which worsen the digestive tract disorder during pregnancy especially constipation and constipation related complications like hemorrhoid and rectal bleeding due to passing hard stool and swollen veins in the rectal area**.** [12]These complication may worsen if proper attention not given.

BACKGROUND

"ALL DISEASE BEGINS IN THE GUT"

- HIPPOCRATES

Constipation is prevailing during pregnancy and it is the second most common in pregnant mothers [5]
According to Correia C**,** Constipation refers to an abnormal infrequency of defecation and to abnormal hardening of stools that makes their passage difficult and sometimes painful. [13]
According to the Lewis**,** Constipation characterized by absent or infrequent stools and hard, dry stools that are difficult to defecate. The more common causes of constipation are insufficient dietary fibers or fluids, lack of physical exercise and ignoring the defection urge. [14]

Other causes includes, colonic disorders like, inflammatory strictures, irritable bowel syndrome, rectocele, then use of certain medications like antacid, iron supplementation, calcium supplementation, excessive use of laxatives. Others are metabolic disorders which include diabetes mellitus, hyperthyroidism, and hypothyroidism, etc [15] along with dietary insufficiency, fluid deficiency and lack of exercise**.** [14]

Constipation is also occurring due to hormonal fluctuations like during pregnancy there is a higher level of the progesterone in body. Because of this increased level, there is relaxation of intestinal muscles. Due to this relaxation, peristaltic movement became for difficult and that leads to constipation.

Then next reason is enlargement of uterus. During pregnancy uterus is continuously growing in size which can put pressure in the bowel and the causes difficult bowel movement that leads to constipation or incomplete evacuation of bowel. Other than this anxiety and worry also cause constipation due to excessive stress hormones that leads to the inflammation of digestive tract which causes difficulty in normal bowel movement. [8]

In more detail during pregnancy there is increase in progesterone level because of it intestinal muscle motility get decreased. As the progesterone level rose the secretion of motilin gets inhibited. Motilin is hormone which is stimulates smooth muscle movement. The another hormone which causes the hypomotility of intestine is relaxin.

Relaxin acts on the myometrium and contribute to decrease the intestinal motility. Also during pregnancy there is activation of renin angiotensin system due to high level of estrogen and progesterone that causes the increase in water reabsorption. Because of high level of estrogen and progesterone stimulates renin and aldosterone secretion.

Aldosterone causes the reabsorption of water and sodium form the renal tract and gut. Due to decreased water content causes the hardened stool and that ultimately leads to constipation or constipation related symptoms. [16]

Symptoms of constipation include less than three bowel movement per week, abdominal distension, decreased appetite, headache, fatigue, indigestion, sensation of incomplete evacuation, straining at stool, elimination of small volume, lumpy, hard, dry stool. If the constipation is not treated then it may leads to fecal impaction, hemorrhoids, even fissures. [17]

Constipation is easy treated and prevented at early stage with help of increasing fiber rich diet, increasing fluids and doing exercises. Pregnant mother should eat 25-30 grams of fiber per day from fruits, vegetable, cereals, whole grains. [12] Fibers are essential for smooth running of intestinal system. Soluble fibers allow more water to remain in stool and make it soft, large which help for easy passage of stool through intestine. Insoluble fiber make stool more bulky because of it stool will easy pass through gut and constipation is prevent. [18]

Drinking more fluids also helps to prevent and treat constipation during pregnancy. At the time of pregnancy, women should take 2 to 2.5 liters of fluids per day. Fluids make stool soft & which can help for easy passage of stool. Along with this, exercise also help to relieve constipation during pregnancy. Exercise stimulates regular bowel movement that helps to relieve constipation during pregnancy. [12]

Other than fibers and fluids, probiotics are also helpful to prevent constipation during pregnancy. Probiotics increased frequency of bowel movement and improve the symptoms related to constipation during pregnancy. [19]

NEED OF THE STUDY

"I WISH THAT BEING FAMOUS HELPED PREVENT ME FROM BEING CONSTIPATED"
- MARVIN GAYE

Above quote says that any person can suffer with constipation irrespective of their age, race, and sex.

In Asia, constipation occurs in 40 % of women during pregnancy.[5] The incidence rate of constipation during second trimester is 44% and in third trimester is 36 %.[20] Constipation leads to symptoms like, infrequent bowel movements, hard stools, rectal fullness, abdominal pain, gassy tummy and loss of appetite. [21]

Along with this constipation also leads to complications like hemorrhoid and rectal bleeding. These complications occur due to passing hard stool and swollen veins in the rectal area. [12]

So, there is need for identification and modification of diet in order to treat and prevent constipation during pregnancy.

Kuronen M, Hantunen s, Alanne L, Kokki H, Saukko C, Sjovall S, etal (2020) conducted an observational survey to know the prevalence rate of constipation during pregnancy. They used Rome IV criteria to check prevalence rate of constipation. The result revealed that prevalence rate of constipation in pregnant women was 40% and the study concluded that prevalence rate of constipation was two-three fold higher among pregnant women. [22]

Bimba, Patil GL, AS Shridevi, SN Praveena, B Asha, Mandava S, etal (2017) conducted a study with 265 healthy pregnant mothers to estimate the prevalence rate of constipation among antenatal women. They used questionnaire related to bowel symptoms, diet and physical activity and the Rome III criteria as tool to define the constipation. the study result shown that prevalence of constipation in the study population was 24% with a prevalence rate of 18%, 34% and 31% in first, second, third trimester. The study concluded that the prevalence rate of constipation is higher in pregnant women than in general population [23]

Shi W, Xu X, Zhang Y, Guo S, Wang J, Wang J (2015) conducted a research study to understand the prevalence rate of functional constipation in pregnant mothers. They prepared questionnaires related to daily living conditions, psychological factors, past history of defecation in the 6 months before pregnancy. They conclude that the prevalence rate of constipation among the pregnant mothers was higher than any other general population [24]

Verghese S.(2015) conducted the research study which concluded that prevalence rate of constipation during pregnancy was 35%, 39%,21% in first, second and third trimester [16]

Staughton J (2020) stated in his article that constipation occur due to lack of water intake, lack of physical activity and nutritional imbalance during pregnancy[8] Also **Aparna (2019)** concluded in her article that during pregnancy low fiber rich content and less physical activity are responsible for occurrence of constipation during pregnancy and also along with this, less water intake also causes constipation during pregnancy [21]

Constipation is more prone during pregnancy and lack of fiber intake, lack of water intake , lack of exercise all these leads to constipation.

Along with this, researcher also experience that during pregnancy women neglecting the constipation and related symptoms.

So, the researcher felt there is need to educate the antenatal mothers about constipation and help them in diet modification, perinatal exercises to treat and prevent constipation and constipation related symptoms during pregnancy.

Problem Statement:-

"Effect of diet counselling and exercise on constipation among antenatal mothers."

Objective of the study:-

1. To assess the prevalence rate of constipation among antenatal mothers
2. To assess the effect of the diet counselling and exercise on constipation among antenatal mothers.

Operational definition:-

1) Diet counselling – According to Encyclopedia, Dietary counseling provides individualized nutritional care for encouraging the modification of eating habits [25]
   According to study, diet counselling is a sessions given for 30 mins on day 1 to the antenatal mothers have complaints of constipation by interviewed method, pretest will be conducted on the same day and on day 5 and day 10 follow-up counselling sessions will be conducted by telephone communication questionnaires for 15 mins and on day 15 the post test will be taken by telephone communication questionnaires.
2) Exercise – According to Wikipedia, Exercise is any bodily activity that enhances or maintains physical fitness and overall health and wellness [26]
   According to study, exercise is a set of walking, chair squat and kegel exercise which will be demonstrated to the antenatal mothers with complaints of constipation for 30 mins.
3) Constipation – According to Wikipedia, Constipation refers to bowel movements that are infrequent or hard to pass [27]
   According to study constipation means, a set of symptoms such as straining for >1/4(25%) of defecations, lumpy or hard stool form 1of 2 on the Bristol Stool Form Scale; for>1/4 (25%) of the defecations, sensation of incomplete evacuation for >1/4(25%) defecations, Sensation of anorectal obstruction or blockage for >1/4 (25%) defecations, Manual maneuvers to facilitate defecation e.g. digital evacuation, pelvic floor support; for >1/4 (25%) of defecations, <3 spontaneous bowel movements per week experience by antenatal mothers from second trimester onwards.

Scope of the study:-

1. The study will expand the scope of function of midwives. The study will improve antenatal services that help to reduce occurrence of constipation among antenatal mothers and also complication related to constipation.
2. The study will assist nurse educator to educate the peripheral level nurses to improve their knowledge about antenatal diet and exercise for constipation.
3. The study will also help antenatal mothers to modify their diet and gives information about antenatal exercise in order to prevent and treat constipation.
4. The study will provide objective for baseline assessment for the other researchers to compare their finding with those in this study

5. The study will open avenues for similar studies to be done in depth. **Assumptions:-**

- Diet counselling and exercise may be effective in reducing constipation among antenatal mothers.
- If proper attention is not given then constipation may leads to hemorrhoids, rectal bleeding.

Hypothesis:-

H_0: There will be no significant difference between diet counselling and exercise on constipation among antenatal mothers at 0.05 level of significance.

Limitation:

Present study is limited following aspects,

- The study subjects are selected by non-probability purposive sampling method.
- The study is limited to selected antenatal OPD.
- The study is limited to antenatal women who are available at the time of day time.
- The study delimited to only those antenatal mothers have complaints of constipation from second trimester onwards

Research Question:-

What will be the effect of diet counselling and exercise on constipation among antenatal mothers?

Ethical aspect:-

1. The study proposal sanctioned by the institutional ethics committee of college
2. Permission taken from concerned authorities of selected of hospital
3. Informed written consent taken from all subjects
4. Confidentiality of data ensured
5. Information had not used/ released outside the terms of agreement
6. Subjects protected from all type of harm

Conceptual framework

Conceptual framework used to provide general explanation of the relationship among the concepts of the research study, without using theory. It is constructed with the help of researcher's own experiences, previous research finding, or concepts of several theories or models [(28)]

According to Miles and Huberman (1994) defined the conceptual framework as a written or visual presentation that explain the main things to be studied in either graphically or narrative form- the key factors, concepts, or variables and the presumed relationship among them [(28)]

The conceptual framework selected for this study is based on General system theory. General system theory describes how to break whole into parts & then do learn how the parts work together in system. These concepts may be applied to different kinds of system, e.g. molecules in chemistry, cultures in sociology, and organs in anatomy & health in nursing [(29)]

The conceptual framework of General System Theory initially introduced by von Bertalanffy (1930s) [(30)]

In it, systems are composed of both structural and functional component that interact within a boundary that filter the type and rate of exchange with the environment.

It consists of three common elements.

Input is a matter, energy, and information received from the environment

In this study the input is six point modified Rome criteria checklist and diet counselling and exercise interventions.

Throughput According to theory, throughput is matter, energy, and information that is modified or transformed within system.

In the study throughput means, the pre-intervention score of constipation will assess by Modified Rome criteria checklist. Then the selected diet counselling and exercise interventions will be given and post-intervention score will be assessed by same six point Modified Rome criteria checklist of constipation.

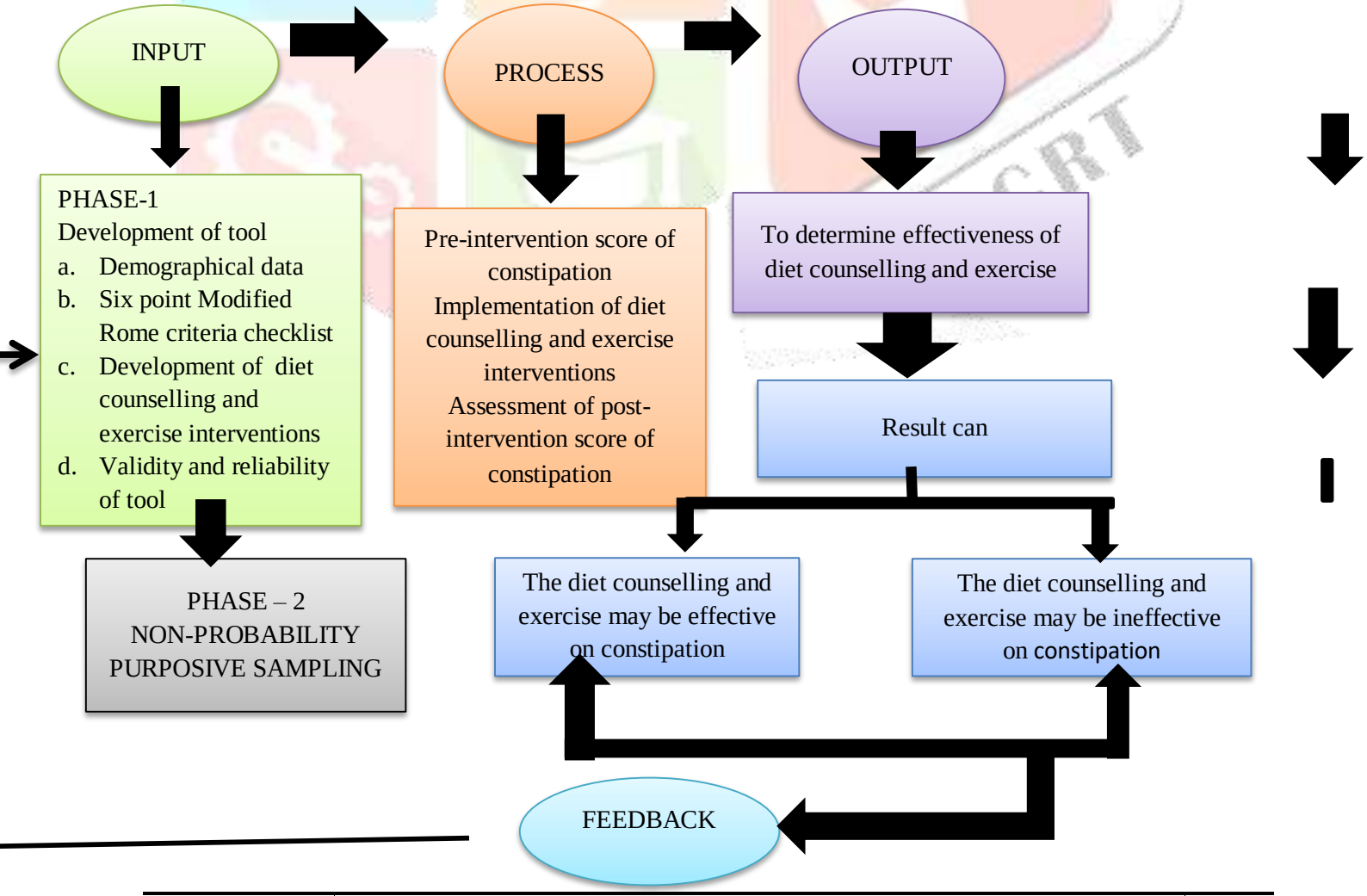
Output is a matter, energy, and information that are released from the system into the environment.

In the study, output refers result to determine the effectiveness of diet counselling and exercise by comparing pre & post test score of constipation**.**

Feedback is information regarding environmental response used by the system (May positive, negative, or neutral)

In study, feedback refers as evaluation of input

FIGURE 1.1: CONCEPTUAL FRAMEWORK



SUMMARY

This chapter dealt with the background, the need of the study, operational definition and conceptual framework was developed for the study. Based on the researcher's assumptions, different hypothesis were given. By developing the conceptual framework, researcher got the insight of the research design and groundwork for the study.

CHAPTER II

INTRODUCTION:

Health is wealth

Health is defined as maintenance of equilibrium between mind and body. It is important to have concept of birth of healthy child and maintenance of health throughout life as much as possible. While planning to fulfill this concept one can think about the risk factors.

Review of literature:

It is one of the most important steps in the research process. The main purpose of literature review is to convey to the readers about the work already done and the knowledge and ideas that have been already established on a particular topic of research. Literature review is a laborious task, but it is essential if the research process is to be successful.

A review of literature helps in many ways. It helps to assess what is already known, what is still unknown and, what is untested. Also justifies the need for its replication, and throws some light on the feasibility of the study and problems that may be encountered. It also helps to uncover methodology tools, which shed light on ways to improve the efficiency of data collection and obtain useful information on how to increase the effectiveness of data analysis.

Definition:

According to Sharma. S. (2005) literature review is defined as a broad, comprehensive, in-depth, systematic critique and synthesis of scholarly published, unpublished, print and online material, audiovisual material and personal communications. [(28)]

This chapter deals with review of literature, which is relevant to this study. Many studies are done related to constipation during pregnancy. The selected literature is classified according to the following groups:

Section 1: Literature related to prevalence of constipation in pregnancy

Section 2: Literature related to effect of diet counselling on constipation in pregnancy

Section 3: Literature related to effect of exercise on constipation in pregnancy

- **Literature related to prevalence of constipation in pregnancy**

Kuronen M, Hantunen s, Alanne L, Kokki H, Saukko C, Sjovall S, etal (2020) an observational study done at secondary and tertiary hospital in Finland to know the prevalence rate of constipation in 474 pregnant mothers and 403 postpartum mothers as an experimental groups and 200 non-pregnant women who did not give birth in past year as control group. Investigator assessed bowel function and other gastrointestinal symptoms by a structured questionnaire during second and third trimesters and one month after childbirth. Rome IV criteria were used to check prevalence rate of constipation. The result reveled that prevalence rate of constipation in pregnant women was 40%. Further study concluded that prevalence rate of constipation was two-three fold higher among pregnant women[(22)]

An article published in the year 2020 by **Australian Government Department of Health** related to constipation during pregnancy mentioned three studies result, that shows the prevalence rate of constipation in pregnancy. The first study mentioned that the prevalence rate of constipation during 14 weeks, 28 weeks and 36 weeks were 39%, 30% and 20% respectively. The second study shown prevalence rate of constipation at first, second and third trimester were 24%, 26% and 16% respectively and third study found that prevalence rate of 29.6%, 19% and 21.8% in the first, second and third trimesters respectively. This article concluded that prevalence rate of constipation was high in second trimester of pregnancy [(31)]

Bimba, Patil GL, AS Shridevi, SN Praveena, B Asha, Mandava S, etal (2017) conducted an experimental study among 265 healthy pregnant mothers to estimate the prevalence rate of constipation, its risk factors and response to treatment among antenatal women in antenatal outpatient department at SSIMS &RC of Davangere. The study included antenatal mothers during their first trimester and followed until their delivery. The women aged between 18 – 40 yrs and those women willing to comply to study protocol were included as a study sample. Mothers having difficulty with mobility, communication and poor compliance, with history of cancer, rheumatic diseases, blood diseases and women with multiple gestations were excluded from study. Questionnaire related to bowel symptoms, diet and physical activity and the Rome III criteria as tool to define the constipation. The study result shown that prevalence of constipation in the antenatal mothers was 24%. Prevalence rate of constipation was 18%, 34% and 31% in first, second, third trimester. Result shown that pregnant women more than 35 years, with pre-pregnancy BMI more than 24, belonging to high socio economic status and past history of constipation have higher incidence of constipation. The study concluded that the prevalence rate of constipation is higher in pregnant women than in general population. [(23)]

Shi W, Xu X, Zhang Y, Guo S, Wang J, Wang J (2015) A research study conducted to understand the prevalence rate of functional constipation in pregnant mothers and the impact of its risk factors in four hospitals of Shanghai. Women who were 37-41 weeks pregnant, aged between 18-45 years, and willing to comply with the study protocol were included in study. They prepared questionnaires related to daily living conditions, psychological factors, past history of defecation in the 6 months before pregnancy. Data was analysed by the SPSS 19.0 and results revealed that the prevalence rate of constipation in those antenatal mothers over 35 years age, between 25 to 34 years and less than 25 years was 22.49%, 8.22% and 1.22% respectively. Those antenatal mothers who were well educated that had high prevalence rate of constipation i.e. 27.22% and those were worked in business had 28.55% of prevalence rate. The study concluded that prevalence rate of constipation among the pregnant mothers was higher than any other general population [(24)]

Verghese ST, FutabaK, Latthe P. (2015) the conducted the research to know the prevalence rate of constipation in pregnant mothers and to understand the management of constipation in pregnancy. This study conclude that prevalence rate of constipation during pregnancy was 35%, 39%, 21% in first, second and third trimester. The result also revealed constipation during pregnancy is occurring due to insufficient water and dietary fiber intake [(16)]

A meta-analysis study conducted by Vazquez . JC. (2010) to know the effect of interventions to prevent and treat constipation among antenatal mothers. Investigator searched various database such as Medline, Embrase upto 2010 and found that the prevalence rate of constipation during pregnancy was 11% to 38% and hemorrhoids 85% in pregnancy. Investigator also revealed that increase fiber intake, fluid intake were effective and safe in order to treat constipation in pregnancy [(32)]

Kawaguti . F .S . Klug. WA. Fang . CB. Ortiz . AJ. (2008) conducted a research study on 41 normal antenatal women at Santa Casa Hospital in Sao Paulo to found out the incidence rate of constipation in antenatal women. Investigator excluded those antenatal women who had previous history of constipation. Authors used questionnaire to assess the frequency of stool, personal habits, symptoms and related condition present before and after pregnancy for data collection. The findings showed incidence rate of

constipation among antenatal mother was 27.6%. It was also concluded that incidence rate of constipation among antenatal women was more as compare to other general population [33]

Ponce J, Martínez B, Fernández A, Ponce M, Bastida G, Plá E, Garrigues V, Ortiz V. (2008) Conducted longitudinal survey study to know the prevalence rate of constipation in pregnancy and peuperium by structured questionnaire to address demographics, obstetric characteristics, lifestyle, eating habits, variable required for diagnosis of constipation. This questionnaire administered in obstetric clinic in the first trimester and by telephone in second, third trimester and pueperial period. The prevalence rate of self-reported constipation in first, second, third and puerperium was 45.4%, 37.1%, 39.4% and 41.8% and prevalence rate of constipation defined by Rome II criteria during the same period was 29.6%,19% ,21.8 and 24.7% respectively [34]

Bradley C.S, Kennedy C.M, Turcea A.M, Rao S.S, Nygaard I.E. (2007) conducted a longitudinal research study with aimed to estimate prevalence rate and risk factors of constipation during pregnancy in 103 healthy pregnant mothers during first trimester. Self- administered bowel symptom questionnaire and a seven day stool diary as a tool used to measured physical activity and dietary fiber intake for data collection. Rome II criteria also used to assess the constipation among antenatal mothers. The result revealed that prevalence rate of constipation during first, second and third trimester was 24% (with 95% CI 16 % - 33%), 26% (with 95% CI 17% -38%), and 16% (with 95% CI 8 – 26%) And 24% (with 95% CI 6 – 23%) in 3 months of postpartum period. The study also found the prevalence rate of irritable bowel syndrome during first, second, third trimester and 3 months postpartum was 19%(with 95% CI 12-28%), 13% (with 95% CI 6 – 23%), 5% (with 95% CI 1-13%) respectively. Researcher concluded that iron supplements and past constipation treatment were also associated with occurrence of constipation during pregnancy. [35]

Derbyshire. E., Davies.J., Costarelli. V., Dettmar. P. (2006) conducted a study to know the prevalence rate of constipation during and after pregnancy among 94 primiarous non-smoker mother who was aged between 19-40 year in st. George's. st. Thomas and Guys and Kings college of teaching hospital , London. Data were collected by 4 to 7 day weighed food dairy, dietary factors in four times. First trimester data was collected once pregnancy had confirmed. Second time data was collected at end of second trimester, third time data collected between 34 to 38 weeks of gestation and final data was collected at postpartum period at 6 weeks after birth of baby with the help of Rome II criteria as tool .The research study found that prevalence rate of constipation during first trimester was 35%(95% CI 23–47%), in second trimester it was 39%(95% CI 26–52%) , 21%(95% CI 10–32%) in the third and 17% at 6 week postpartum. The study concluded that constipation was greater in second trimester. [36]

Audu .BM, Mustapha SK. (2006) conducted a research study among 370 antenatal mothers to know the prevalence rate of gastrointestinal symptoms including heart burn, easy fullness, epigastric pain, constipation, anorexia during pregnancy at the University of Maiduguri Teaching Hospital. Investigator used interviewed method to collect the data from antenatal mothers. Questionnaires on the basis presence of any gastrointestinal symptoms was used as a research tool to collect the data. The result revealed that frequency of constipation among antenatal mothers was 6.7% and gastrointestinal symptoms are more common in primigravbida mothers as compare to multigravida mothers and more common in first trimester. [37]

❖ Literature related to effect of diet counselling on constipation in pregnancy

Shafaei FS, Mirghafourvand M, Havizari S (2020) conducted a randomized controlled clinical trial among 108 pregnant mothers with unsuccessful breastfeeding in Tabriz health centers to know the effect of prenatal counselling on breastfeeding self-efficacy and frequency of breastfeeding mothers. The women divided into experimental and control group by randomization. The experimental group had received four prenatal counselling sessions upto 4 months after delivery and the control group received routine care. Investigator used Breastfeeding Self-Efficacy (BSES) questionnaire and frequency of breast feeding problem checklist as a research tool for data collection. These tool were used to collected data on day 15 and 2, 4 month. The investigator found that significant difference between experimental and control group in terms of breast feeding self-efficacy on day 15 ($p<0.001$) an 2 ($p<0.001$) and 4 ($p<0.001$) month after

delivery also frequency of breastfeeding problems on the 15 ($p=0.008$), 2 ($p<0.001$) and 4 ($p<0.001$) after delivery was significantly different in both groups. The investigator concluded that prenatal counselling was effective to improve mothers self-efficacy related to breastfeeding and relieve breastfeeding problems during postnatal period. This study also shown that counselling was effective in pregnancy period [58]

Salem. H. (2021) recommended the way to deals with constipation during pregnancy. He stated that apple juice, pear juice and prune juice were helps to relieve the constipation in pregnancy. Author also suggested that intake of high fiber foods and fluid intake can also relieve constipation in pregnancy [38]

Hydration for health (2021) journal described the hydration in pregnancy and breastfeeding. Hydration is important for the fetal wellbeing and it is helpful to relieve constipation which is occur during pregnancy. They stated that water relieve the constipation by making the stool soft and ultimately increasing daily bowel movement [39]

Howland .G. (2020) stated the benefits of fiber rich foods, water intake and prebiotics and probiotics for treating constipation in pregnancy in his article. He wrote that fiber rich foods like berries, legumes, beans, whole grains increase the bulks up material in digestive tract and helps to move fecal material though the intestines. And ultimately relieve from constipation. He also stated that 10 glass of water per day helps to relieve from constipation by making the stool soft [40]

Staughton. J. (2020) author of this article stated that constipation occur due to lack of water intake, lack of physical activity and nutritional imbalance during pregnancy [8]

Malachi R. (2020) stated in her article about the benefits of eating bananas in pregnancy. A banana contains dietary fibers and also potassium. It also helpful in elimination of toxins from body and promote the digestion during pregnancy. Banana also contain pectin which is helps to improve digestion by relieving constipation and promote regular bowel movement during pregnancy [41]

American pregnancy association (2020) stated the importance water during pregnancy. They suggested drinking of 10 to 12 glass cups of water per day can help to eliminate the waste from body and relieve the constipation during pregnancy by making the stool soft and increased bowel movement [12]

During pregnancy low fiber rich content and less physical activity are responsible for occurrence of constipation (**Aparna (2019)** and also stated less water intake also causes constipation during pregnancy [21]

Malachi . R. (2019) wrote an article on benefits and side effect of jackfruit during pregnancy. Author mentioned that jackfruit can also helpful to relieve the constipation during pregnancy. Jackfruit is high source of fibers. Author mentioned 100 grams of Jackfruit contains 1.5 grams of fiber and these fibers are easing the constipation by increasing the bulk and making stool soft [42]

Noriega .C. (2019) published an article on preventive measure for constipation in pregnancy. It reveals that high fiber diet helps to relieve and prevent from constipation during pregnancy. Diet contains vegetables, fruits, whole grain, and beans all these are the high sources of dietary fibers. She stated the importance of fluids in order to prevent constipation and mother should drink 12-13 glass of waters to prevent constipation [43]

S. Natalia (2019) mentioned prunes or prunes juice may alleviate the constipation. She also mentioned that prune can be used as a first line therapy for constipation. Author mentioned that according to Critical Review in Food Science and Nutrition , dried plums and their derivatives can also helpful in preventing constipation [44]

A published article by **Khan. A. (2019)** on health benefits of eating oranges during pregnancy stated that oranges contains high source of soluble and insoluble fiber. Cellulose are also help to keep the bowel movement regular and contributes in relieving constipation during pregnancy. The fibers which are present in oranges are also help to resolve stomach issues and abdominal bloating[45]

Busse.M. (2017) wrote an article on the effect of fenugreek on constipation during pregnancy. Fenugreek contains high level of soluble fibers absorbs water from intestine and increase the bulk and that ultimately promote the bowel movement [(46)]

An article published in 2017 stated about the constipation during pregnancy and the way to deal with constipation. It was mentioned that high fiber rich diet, plenty of fluids are helpful to relieve constipation during pregnancy by making stool soft and increasing bowel movement [(47)]

Mirghafourvand M, Homayouni RA, Mohammad Alizadeh CS, Fardiazar Z, Shokri K. (2016) conducted a triple-blind randomized controlled trial among 60 antenatal mothers to know the effect of the probiotic on constipation during pregnancy with inclusion of healthy singleton pregnant women who had constipation, over the age of 18 years, gestational age between 24-28 weeks, who was literate and willing to participate in the study. It was conducted in five public and government health centers and two governmental hospitals in Tabriz, Iran. The researcher used Rome III criteria and quality of life questionnaire as a research tool and convenience sampling method is used for selection of samples for treatment and control group. Treatment group received 300gms of yogurt enriched with Bifidobacterium and Lactobacillus 4.8×1010 colony forming units and control group received conventional yogurt. Investigator given this intervention for four weeks. Then after this researcher evaluated the defecation frequency, stool consistency, straining during defecation, sensation of anorectal obstruction. ANOVA test was used for the analysis of data.CI 95% was -1.4% to 1.7%, P =0.872. The study result shown that constipation symptoms like straining, anorectal obstruction, consistency of stool and color of stool, amount of defecation were improved in both group. But incomplete evacuation was reduced only in treatment group. Hence, the study concluded that both probiotics and conventional yogurt can relieve the symptoms of constipation during pregnancy [(5)]

Rungsiprakarn P, Laopaiboon M, Sangkomkamhang US, Lumbiganon P, Pratt JJ (2015) conducted a meta-analysis on effectiveness and safety of interventions for treating constipation in pregnancy. Cochrane pregnancy and childbirth group's trial register (30 April 2015), clinical trial .gov and the WHO international clinical trial registry platform (30 April 2015) and reference lists of retrieved studies were referred by investigators. Study results compared effect of pharmacological intervention with non-pharmacological intervention. Is shows that pregnant mother who received fiber supplementations had higher frequency of stools as compared with no intervention. The fiber supplementation was associated with improve stool consistency which is defined as trialist included hard stool decreased by 11%to 14%, normal stool increased by 5% to 10%, and loose stool increased by 0%to 6%. [(48)]

E. Lever, J.Cole, S.M. Scott, P.W. Emery, K. Whelan (2014) conducted systematic review of randomized controlled trials (RCTS) to know the effect of prunes on GI function. Researcher referred 16 electronic databases and included only those which showing the effect of prunes on GI function. From 16 databases four trials met the inclusion criteria among them one was constipation and three were non-constipated. In constipation subjects for 3 weeks prune consumption was given and the result shown that there was increase in the stool frequency and stool consistency as compared with psyllium. In non-constipated subjects, prunes juice soften stool consistency and stool weight. Study concluded that prune can help in improving the stool frequency and consistency [(49)]

Yang . J. Wang HP, Zhou L. Xu. CF. (2012) performed a meta- analysis research study to know the effect of dietary fiber on constipation. Investigator searched Ovid MEDLINE , Cochran Library, PubMed database to got review articles and chooses 1322 articles. Researcher included only those articles which had high quality RCTs and had data about stool frequency, stool consistency, treatment success and gastrointestinal symptoms. Version 5 software was used for analysis and test. Study concluded that dietary fiber intake increases the frequency of stool during constipation. [(50)]

Vazquez . JC. (2010) conducted a meta-analysis study to know the effect of interventions to prevent and treat constipation among antenatal mothers. Investigator searched Medline, Embrase, The Cochrane Library and other database upto 2010. From these data base investigator found the prevalence rate of

constipation during pregnancy was 11% to 38% and hemorrhoids 85% in pregnancy. The study concluded that increase fiber intake, fluid intake were effective and safe in order to treat constipation in pregnancy [32]

Young G, Jewell DJ. (2000) conducted review to assess the effects of different methods for treating constipation among pregnant mothers. Cochrane Pregnancy and Childbirth Group trial registers, the Cochrane Controlled Trials Register and Medline (1987 to 1997) were used to search different reviews. Randomized trials of any treatment for constipation in pregnancy were used. Data collection and analysis done by trial quality assessment and data extraction by two reviewers. The result shown that fiber supplements increased the frequency of defecation and make stool softer and concluded that dietary supplementation of fiber in the form of bran or wheat fibers are help women with constipation during pregnancy [51]

Anderson. AS. Whichelow. MJ. (1985) performed a study to assess the effect of dietary fiber and fiber supplementation on constipation among 40 pregnant women during third trimester of their pregnancy. Investigator given 14 day weighted diet records and bowel function charts to fill for 4 week. And followed 2 weeks of baseline observation done. Investigator had divided antenatal mothers in three groups as Group A, Group B, Group C respectively. Group A participants asked to take 10 g of corn based biscuits, Group B asked to take wheat bran and Group C had not any interventions. After interventions result shown that there was increase in the number of bowel movement and a change in stool consistency occur in Group A and Group B. There was no change in number of bowel movement or in stool consistency in Group C participants. In group A mean increased 7.2+/- 1.0 g per day (p less than 0.001), Group B mean increase 9.1+/- 1.6 g per day (p less than 0.001), group C means decreased 3.50+/-1.6 g per day (p less than 0.005) [52]

❖ Literature related to effect of exercise on constipation in pregnancy

Bowen M (2020) stated in his article about the natural remedies to treat constipation during pregnancy. Researcher concluded and recommended that walking for 20 to 30 minutes can improve the digestion and ultimately relieve the constipation in during pregnancy also stated that waking helps for improve the gut motility and that reduced the constipation in pregnancy [53]

ACOG (2020) also recommended the importance of exercise during pregnancy and its benefits during pregnancy that exercise is helpful to reduced back pain, promote the healthy weight gain during pregnancy, decreased the risk of gestational diabetes, preeclampsia, cesarean delivery also mentioned that exercise eases constipation in pregnancy. Exercise promotes the gut motility and increase bowel movement and relieve from constipation during pregnancy. ACOG suggested walking, swimming, stationary bicycling, modified yoga for pregnant mother to do daily exercise [54]

Howland .G. (2020) stated the advantages of moderate exercise on constipation among pregnancy. Author suggested that 10-15 mins of gentle exercise can help to reduce the constipation symptoms by increasing the gut motility. Authors recommended gentle exercises like walking, yoga for relieving constipation during pregnancy [40]

Noriega .C. (2019) wrote an article on how to prevent constipation during pregnancy and stated the benefits of regular physical activity for prevention of constipation among antenatal mother. The article also supported that regular physical activity prevent the constipation by increasing the gut motility and ultimately preventing constipation [43]

Hammer .RL. Perkins. J. Parr .R. (2000) stated a research article in order to help perinatal educator to advise the pregnant mother for risk and benefits of physical activity during pregnancy. In this article author given a guideline for exercise during pregnancy also disclosed the benefits of physical activities and contraindications of physical activities. They stated physical activities during pregnancy is helpful to maintain healthy body weight and relief from minor aliments during pregnancy. Author mentioned that a physical activity during pregnancy helps to reduce the incidence of constipation by decreasing symptoms during pregnancy [55]

SUMMARY

This chapter deals with the review of literature regarding the prevalence rate of constipation among antenatal mothers and effect of diet counselling and exercise on constipation among antenatal mothers. The reviews shown that the prevalence rate of constipation is high during pregnancy. The reviews also shown that the constipation can be easily treated and prevented with the help of diet counselling and exercise.

CHAPTER III

INTRODUCTION

According to Polit and Beck , Research methodology means the techniques used to structure a study and to gather and analyze information in a systematic fashion**.(56)**

The methodological decision paves crucial implication for validity and credibility of the study. Empirical study together with the methodology obtaining valid and reliable data for an investigation. This chapter deals with the methodology adopted for assessing the effect of diet counselling and exercise among antenatal mothers. It includes the description of the research approach, research design, setting of the study, sample, sampling technique, development of data collection tool, procedure for data collection and the plan for data analysis.

RESEARCH APPROACH

A research approach refers to an integrated set of research principle and general procedure guidelines **(57)**

The research approach spells out the basic strategies that the researcher adopts to develop the information that is accurate and interpretable. The control is achieved by holding condition constant and varying with the phenomenon under study.

Quantitative research approach is used in this study.

According to Polit and Beck quantitative research approach define as the investigation of phenomena that lend themselves to precise measurement and qualification, often involving a rigorous and controlled design **(56)**

The choice of research approach constitute one of the major decision, which must be made in conducting a research study as the approach taken on a research project can greatly affect its outcome. In order to achieve the objective of study, quantitative research approach was considered.

RESEARCH DESIGN

The research design provide framework which is use for planning, implementation and analysis of a study. The research design helps to answer the research questions and hypothesis that are related to study.

Sharma. S. (2018) stated that research design defined as a blueprint to conduct a research study, which involves the description of research approach, study setting, sampling size, sampling technique, tools and method of data collection and analysis to answer specific research questions or for testing research hypotheses**.** **(28)**

The selection of research design is an important step in research methodology. It provides the guide for the research study. It helps the researcher in the selection of subjects for observation, manipulation of independent variable and determines the types of analysis to be used to interpret the data.

The selection of research design depends upon the purpose of study and the condition under which the study is conducted.

The design adopted in this study was non randomized control group design of quasi experimental design.

According to Sharma .S.(2018) stated Quasi experimental research design involves the manipulation of independent variable to observe the effect on dependent variable, but it lacks randomization of participants in experimental groups, which is one of the essential characteristics of RCT [(28)]

This study aimed to find out the effect of diet counselling and exercise on constipation among antenatal mothers. The researcher had chosen a group of mother with complaints of constipation in selected hospital in selected area. In the study the researcher used modified Rome III criteria as a research tool. On day 1 constipation score was assessed with the help of modified Rome III criteria by pretest. After constipation score assessed diet counselling and exercise was given to the constipated mothers for 30 mins. Then follow-up counselling was done on day 5 and day 10 with the help of telephone communication questionnaires for 15 mins. Then on day 15 post-test was conducted with the help of modified Rome III criteria.

Figure 3.1: symbolic representation of the research design was replicated in figure as follow,

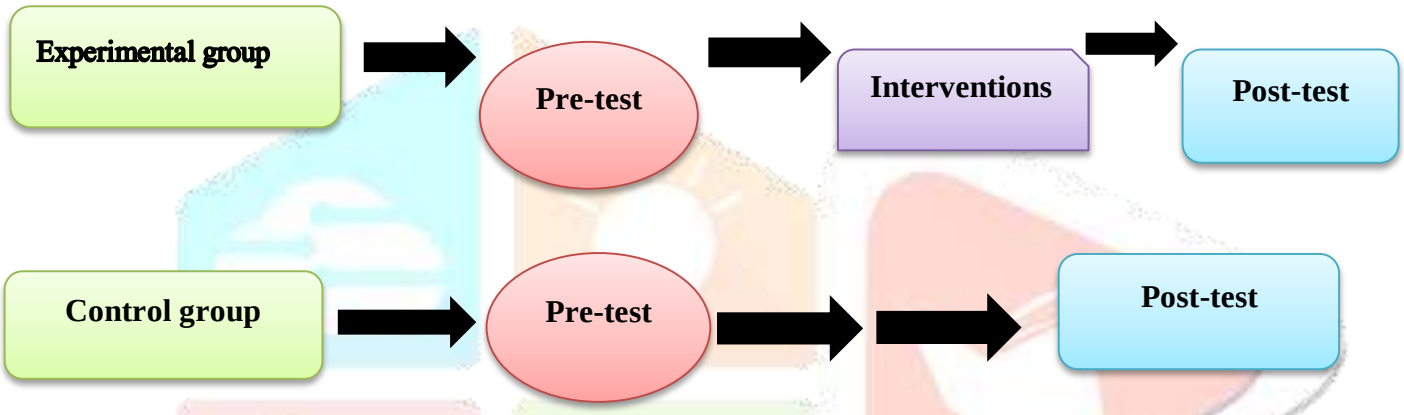


TABLE 3.1 Representation of research design:

	Pre-test	Interventions	Post-test		
			Day 5	Day 10	Day 15
Experimental group	O_1	X	O_2	O_3	O_4
Control group	O_1	Routine management	-	-	O_4

Symbols used:

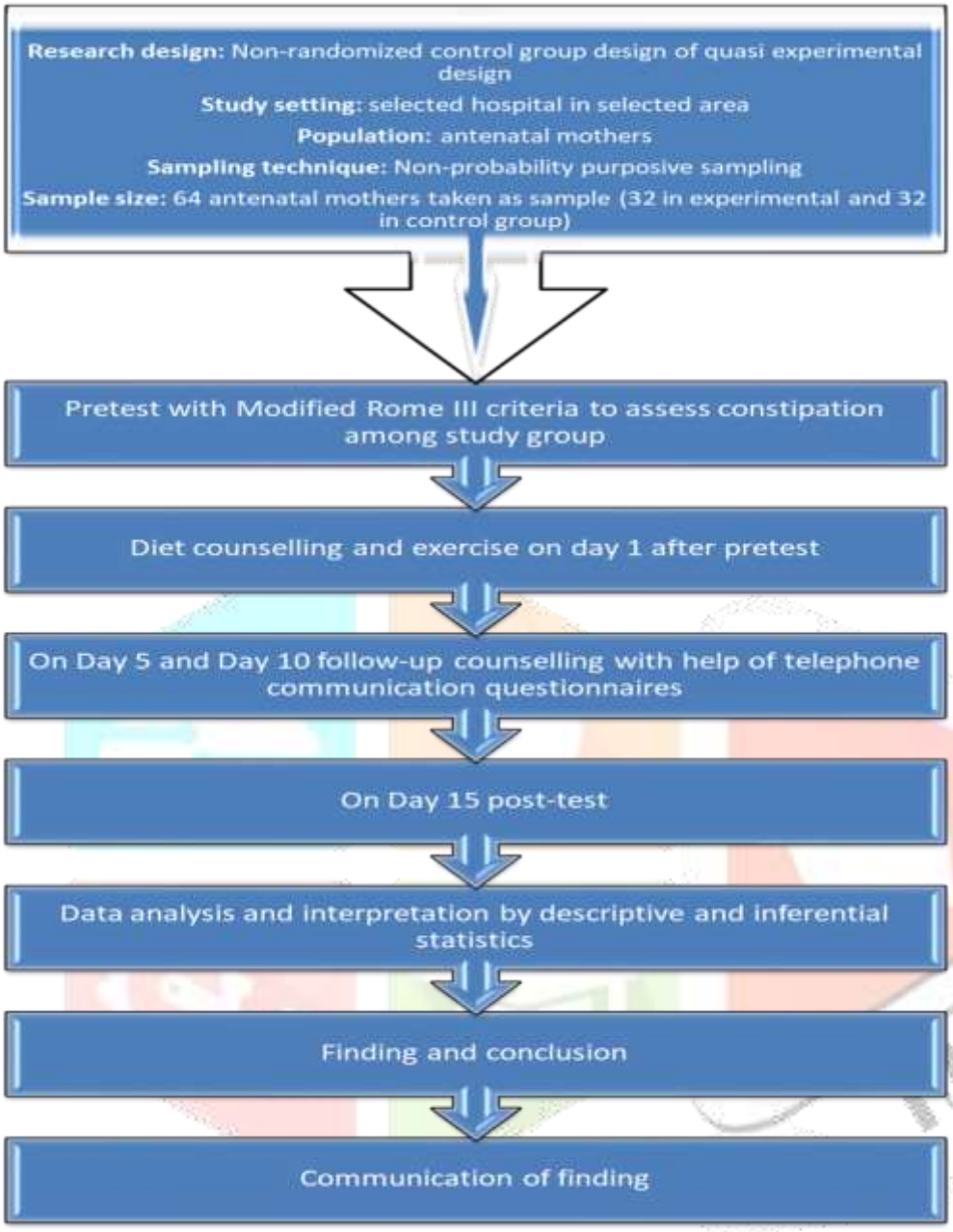
O1 – Pre-test

X – Interventions

O2 & O3 – follow-up counselling sessions on day 5 and day 10

O4 – Post-test on day 15

Figure 3.2: Schematic representation of research process



SETTING OF THE STUDY

Polit and Beck (2015) stated that setting is "physical location and conditions in which data collection takes place in the study". Setting refers to the area where the study was conducted [56]

The study had been conducted in Antenatal O.P.D. selected hospital in selected area.

750 bedded hospital was selected for cater to needs and problems of the women of all age group, either obstetrics or gynecological in nature. Moreover it also provides training and research facilities for nurses in gynecology and obstetrics. This hospital had well equipped antenatal wards, labor room and postnatal wards.

Along with this, it also provided need-based services to all indoor and outdoor patient and community as a whole. The reason for selecting this hospital was administrative support and cooperation, availability of samples, convenience for transportation.

VARIABLES

Sharma. S. (2018) states that Variables are qualities, properties, or characteristics of person, things, or situations that change or vary [28]

Independent variable:

Sharma .S. (2018) states that independent variable is a presumed cause/stimulus or activity that is manipulated or varied by the researcher to create the effect on the dependent variable [28]

In this study, independent variables were diet counselling and exercise for constipation. The researcher manipulated it in order to see effect on dependent variable.

Dependent variable:

Sharma. S. (2018) states that dependent variable is presumed effect/outcome or response due to the effect of the independent variable, which researcher wants to predict or explain [28]

In this study, dependent variable was antenatal mothers with complaints of constipation

Extraneous variable:

Sharma. S. (2018) states that extraneous variable are the factors that are not part of study but may affect the measurement of the study dependent or outcome variables [28]

In the study extraneous variables was remedies used by pregnant mother to relieve from constipation at home, previous experience of mother on management of constipation, sources of information related to management of constipation during pregnancy. E.g. T.V. books, etc.

POPULATION:

A population is an entire collection of people, animals, plants, or things from which researcher want to collect the information for research study. It is complete group of people from which the researcher will collect the data and draw conclusion.

Sharma. S. (2018) states that population is the aggregation of all the units in which a researcher is interested [28]

Target population:

Sharma. S. (2018) states that a target population consist of the total number of people or objects which meet the designated set of criteria [28]

In the study target population is antenatal mothers.

Accessible population

Sharma. S. (2018) states that accessible population is the aggregate of cases that conform to designated criteria and are also accessible as subjects for a study [28]

In the study, accessible population is antenatal mothers in ANC OPD of selected hospital.

SAMPLE AND SAMPLING TECHNIQUE:

Sample:

According to sharma. S. (2018) stated that sample consists of a subset of units which comprise the population selected by investigators or researchers to participate in their research project. Sample is representative unit of target population, which is to be worked upon by researchers during their study [(28)]

In this study, the sample consists of antenatal mothers with constipation during their second trimester onward who were came to ANC OPD for antenatal visit **Sampling technique:**

According to sharma. S. (2018) stated that sampling is the process of selecting a representative segment of the population under study [(28)]

In this study, non-probability purposive sampling technique was used to select the final study subjects. Antenatal mothers with constipation during their second trimester onward were included in the study.

Sample size

Sample size is the number of people who participate in the study [(56)]

Sample size was calculated on basis of medical record department data of ANC OPD of the selected hospital.

The constipation was found in 10% of cases.

P = 11/110 = 10% constipation

Confidence level = 95%

Absolute precision = E = 15%

$n = 2Z^2pq / E^2 = 2\times (1.96)^2 \times 10\times 90 / (15)^2$

$= 6914.88 / 225 = 30.73 =\tilde{}\ 31$

31 cases in each group Attribution rate = 5% =1.53

N = 30.73+1.53 = 32.26

=32 cases in each group.

So, Total sample size is 64 (10% attrition rate)

32 sample in experimental group and 32sample in control group.

Sampling criteria:

Sampling criteria consist of inclusion and exclusion in the target population.

In the present study, following inclusion and exclusion criteria are set.

Inclusive criteria:

Antenatal mothers who are,

1. In second trimester onwards
2. Willing to participate
3. Who can read and write Marathi.

Exclusive criteria:

1. Antenatal mothers with high risk complication such as preeclampsia, eclampsia, etc

2. Antenatal mothers on treatment for constipation
3. Antenatal mothers who are doing daily exercises.

DATA COLLECTION TOOL AND TECHNIQUE:

The data collection tool was constructed by the investigators in the light of literature reviewed and her experience in the clinical field to ensure the adequacy, relevancy, and questions organization, validity of the content and measurable tool.

Tool preparation:

The tool was developed by the investigator in the context to assess the effect of diet counselling and exercise on constipation among antenatal mothers and to know the prevalence rate constipation among antenatal mothers.

Checklist of Modified Rome criteria III used as a tool to assess the constipation score among antenatal mothers.

The following steps are undertaken prior to the preparation of the tool.

- Extensive review of literature on constipation in pregnancy
- Validation of tool by the expertise

The tool consisted of 2 parts; the description of the tool is as follows,

- Part I: Semi-Structured interviewed questionnaire to assess the demographical variables which includes questionnaire related to age, education, family income, diet, exercise, bowel pattern.
- Part II: Modified Rome III criteria to assess the constipation among antenatal mothers

Technique:

Antenatal mothers with constipation were selected as the participants for the study. The demographical data, bowel pattern, diet and exercise was collected from the antenatal mothers and constipation score was assessed with help of modified Rome III criteria by pretest conducted on Day 1

After pretest the diet counselling and exercise demonstration was given for 30 minutes.

Then two follow-up counselling sessions was conducted through telephone communication on the day 5 and day 10 for 15 mins.

After this follow-up counselling sessions post – test was conducted on day 1 **Validity**

According to Treece and Treece, 'Validity refers to an instrument or test actually testing what is supposed to be testing '[28]

Validity is a degree at which an instrument measures what it is supposed to be measured.

Content validity concerned with scope of coverage of the content area to be measured [28]

To ensure the content validity of the tool, it was given to 21 experts of different fields. Those experts included nursing teaching faculties – 19, statistician – 01, dietitian - 01

A correction given by the experts was incorporated in the tool. As a whole the suggestion and comments of the expert included were make it more point wise and specific, to add and remove some options and frame the sentences. The suggestion discussed with guide and necessary changes were made.

Feasibility of the study

Feasibility helps the researcher to prevent an expensive fiasco. It also helps the researcher to determine if the samples understand the items and if the directions given are clear. The purpose is to reveal problem selected to answering and to point out weakness in the administration, organization and distribution of the instrument. The pilot study was conducted to check the feasibility of the study. The tool had been tested on 12 antenatal mothers that were eligible for the study and the researcher found that the study was feasible for time management, availability of subjects, ethical issues, and the equipment's required and cost of the study. These samples had been excluded in the main study.

Pilot study

According to Sharma. S. (2018) pilot study referred to a small-scale preliminary tryout of the method to be used in an actually large study, which acquaints the researcher with problems that can be corrected in proportion for the large research study or is done to provide the researcher with an opportunity to try out the procedure, methods, and tools of data collection [28]

- The pilot study was conducted on 6/01/2021 to 19/01/2021 with the purpose of testing the proficiency of the tool to be used for data collection, and to assess the feasibility of the study and to decide the statistical analysis and practicability of research.
- Prior permission was obtained from the administrative department of the hospital, HOD of obstetrics and gynecology department of the hospital.
- Subjects were selected from the Antenatal OPD. 12 subjects were selected including 6 for experimental group and 6 for control group using non probability purposive sampling.
- Written informed consent was also obtained from the participants. The subjects including in the pilot study were marked for exclusion in the final study.
- The interpretation was carried out at the end of the pilot study, the findings were reliable, there was no difficulty found during the pilot study.
- The main study was found to be feasible for conduction based on finding of pilot study

Reliability

According to Sharma . S.(2018) stated that Reliability is the degree of consistency and accuracy with which an instrument measures the attribute for which it is designed to measure [28]

The reliability of the tool had been tested by checking the Modified Rome criteria questionnaires among 12 antenatal mothers.

Method: 12 subjects were selected for reliability. Reliability was calculated by using Split half method

Result: The reliability of modified Rome criteria checklist was found to be 0.871. Hence tool was found to be reliable.

Data collection method

Data collection is precise, systematic method of gathering information relevant to research problem.

a) Permission from concerned authorities

Prior to collection of data, permission was obtained from the HOD of obstetrics and gynecology unit of selected hospital. The purpose and the nature of the study were explained to the authority to gain cooperation.

b) Period of data collection

The data collection began from 23/01/2021 to 28/02/2021.Each subject was explained about the study and its purpose. The data collection was done

CHAPTER IV

INTRODUCTION

According to Polit and Beck, Statistical analysis is the organization and analysis of quantitative data using statistical procedures, including both descriptive and inferential statistics [56]

The purpose of the analysis is to reduce the data to an intelligible and interpretable form so that the relation of the research problem can be studied and tested.

According to Polit and Beck, analysis is the process of organizing and synthesizing data so as to answer research questions and test hypothesis [56]

This chapter dealt with the analysis and interpretation of the data collected from 64 antenatal mothers with complaint of constipation.

The present study had been taken up to assess the effect of diet counselling and exercise on constipation among antenatal mothers.

The data was analysed according to the objectives of the study which are:

1. To assess the prevalence rate of constipation among antenatal mothers
2. To assess the effect of the diet counselling and exercise on constipation among antenatal mothers.

The raw data was entered into Microsoft excel sheet. The data was first coded and entered in the computer software SPSS. Further data were processed and the mean, SD, percentage, Mann-Whitney U test was used in terms of 0.05 level of significance to fulfill the objectives of study.

ORGANIZATION OF THE FINDING:

The data was analysed and presented in the following sections:

Section 1: Description of samples according to demographical data of antenatal mother with constipation

Section 1(A): Description of socio-demographical variable data of antenatal mothers

Section 1(B): Description of antenatal history of pregnant mother

Section 1(C): Description of diet history during antenatal period

Section 1(D): Description of history of elimination pattern during antenatal period

Section 2: Description of pre-test and post-test prevalence rate of constipation among antenatal mothers

Section 3: Analysis of effect of the diet counselling and exercise on constipation among antenatal mothers

SECTION 1: Description of samples according to demographical data of antenatal mothers with constipation

This section deals with description of selected variables such as age, educational status, type of family, working status, family income, pregnancy related data , diet related data, elimination pattern.

Section 1(A): Description of socio-demographical variable data of antenatal mothers.

Table 1(A): Description of socio-demographical variable data of antenatal mothers

n=64

	Parameters	**Experiment f(%) n=32**	**Control f(%) n=32**
Age (Yrs)	20 – 25	15 (46.9)	21 (65.6)
	26 – 30	12 (37.5)	10 (31.2)
	31 – 36	5 (15.6)	1 (3.1)
Type of family	Nuclear	13 (40.6)	9 (28.1)
	Joint	19 (59.4)	23 (71.9)
Family income (Rs)	<5000	0	0
	5001 – 10000	0	0
	>10000	32 (100)	32 (100)

Table 1(a) shows that:

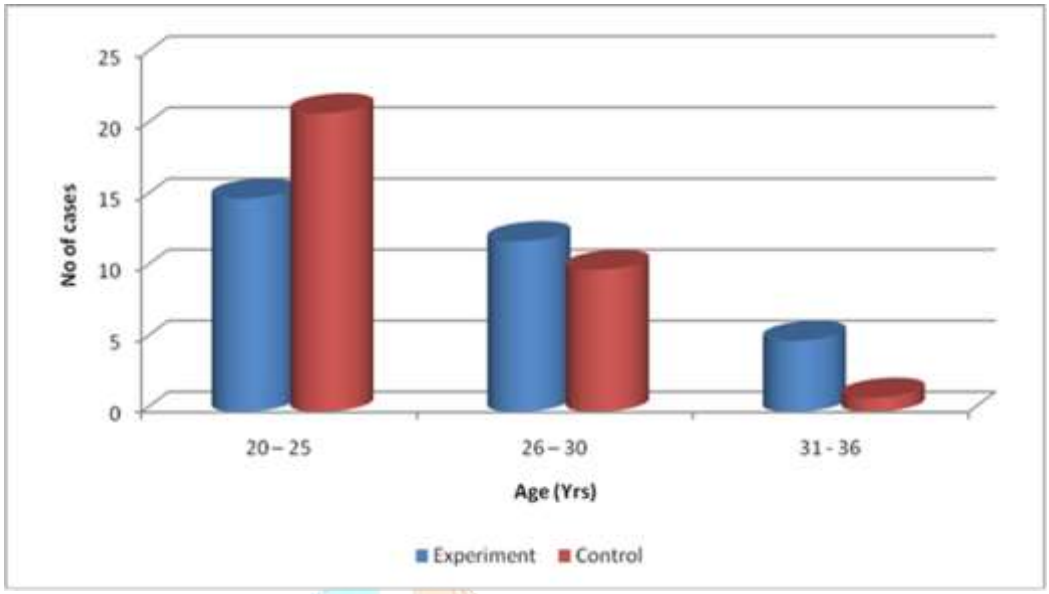
❖ **Demographical data**

Age: Most of the antenatal mothers among experimental group and control group were in age between 20-25 years i.e. 15(46.9%) and 21(65.6%) respectively. 12(37.5%) of them were in age group of 26-30 years in experimental group whereas 10(31.2%) of them in control group. Only 5 (15.6%) of antenatal mothers were in age group of 31-36 years in experimental group and 1(3.1%) of them in control group.

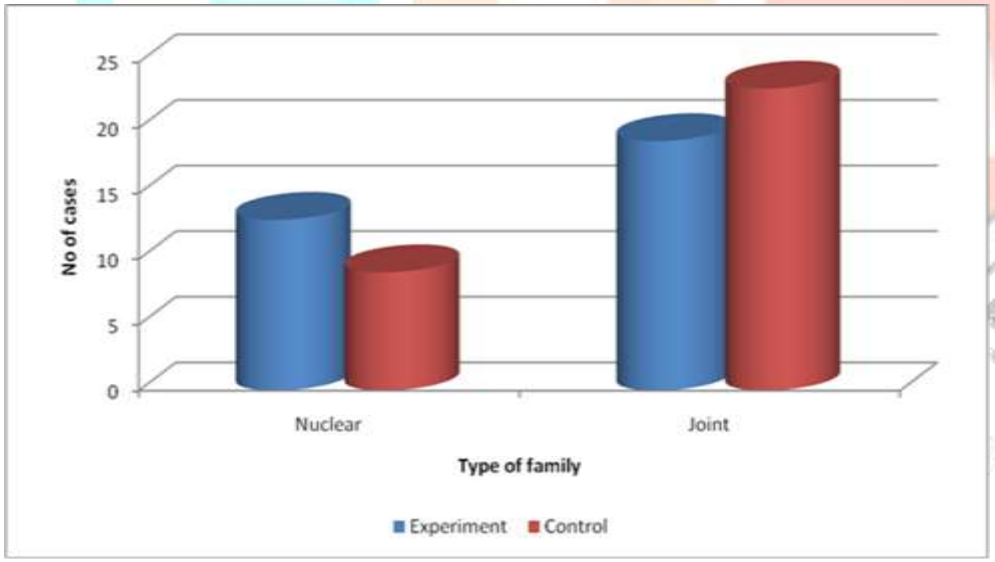
Type of family: 19(59.4%) and 23(71.9%) of antenatal mothers among experimental group and control group were belonged to joint family. Whereas 13(40.6%) of antenatal mothers were belonged to nuclear family in experimental group and 9(28.1%) of them in control group.

Family income: All antenatal mothers were having family income >10,000 in both experimental and control group i.e. 32(100%) and 32(100%) respectively.

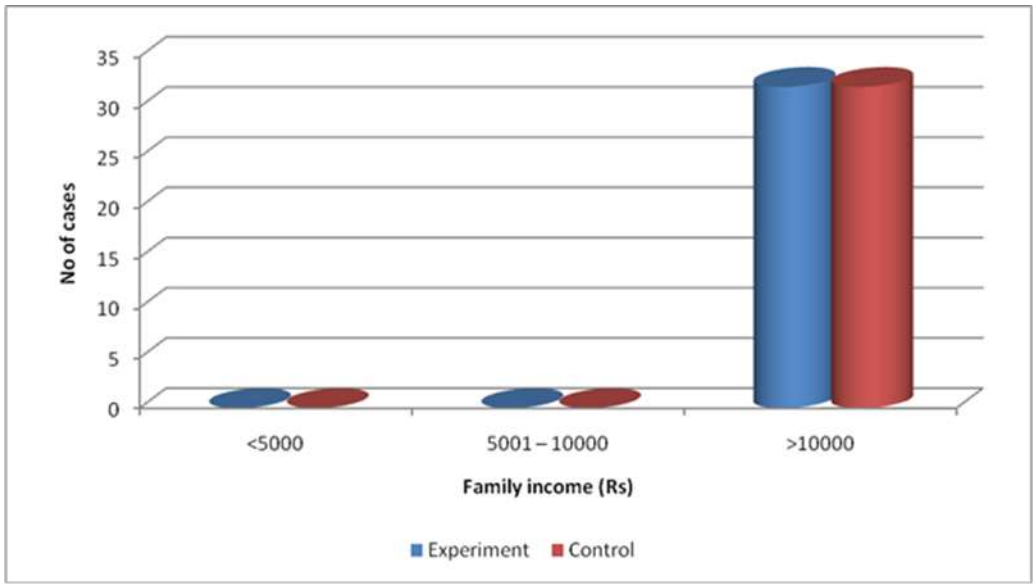
GRAPH 1: Bar diagram showing age wise distribution of antenatal mothers in the study.



GRAPH 1: Bar diagram showing age wise distribution of antenatal mothers



GRAPH 2: Bar diagram showing type of family wise distribution of antenatal mothers



GRAPH 3: Bar diagram showing family income wise distribution of antenatal mothers

Section 1B: Description of antenatal history of pregnant mother

Table 1 (B): Description of antenatal history of pregnant mother

n=64

	Study group	**Mean**	**SD**
Duration of pregnancy(Months)	Experimental group (n=32)	6.88	1.699
	Control group (n=32)	6.78	1.845
Weight (Kgs) at the time of pretest	Experimental group	58.31	7.826
	Control group	55.97	8.487

Table 1 (B) shows that

Duration of pregnancy in months: Mean of duration of pregnancy of experimental group was 6.88% months whereas in control group it was 6.78% months.

Weight (kg) at the time of pretest: Mean of weight (kgs) at the time of pretest was 58.31% in experimental group whereas in control group it was 55.97%

Table 1 (B): Description of antenatal history of pregnant mother

n=64

	Parameters	**Experiment f(%) n=32**	**Control f (%) n=32**
Parity	Primigravidae	20 (62.5)	22 (68.8)
	Multigravidae	12 (37.5)	10 (31.2)
History of illness before pregnancy	Yes	0	0
	No	32 (100)	32 (100)
History related to health related problem	Yes	0	0
	No	32 (100)	32 (100)
History of medication	Yes	0	0
	No	32 (100)	32 (100)
History related to nausea and vomiting	Yes	1 (3.1)	3 (9.4)
	No	31 (96.9)	29 (90.6)

Table 1(B) shows that:

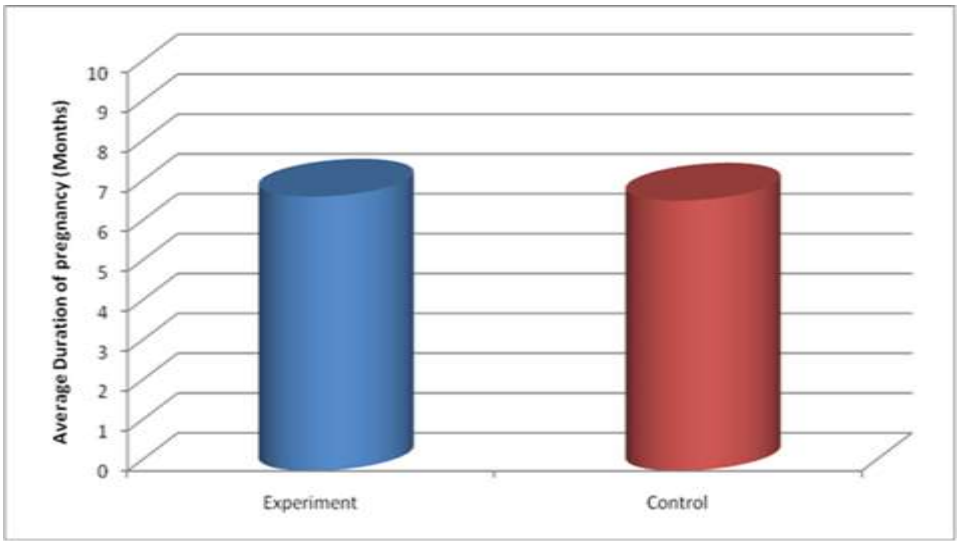
Parity: Most of antenatal mothers in experimental group and control group were primigravida mothers i.e. 20(62.5%) and 22(68.8%) respectively. Multigravida mothers were 12(37.5%) in experimental group and 10(31.2%) in control group.

History of illness before pregnancy: None of the antenatal mothers in both experimental and control group was not have any H/O illness before pregnancy i.e. 32(100%) and 32(100%) respectively.

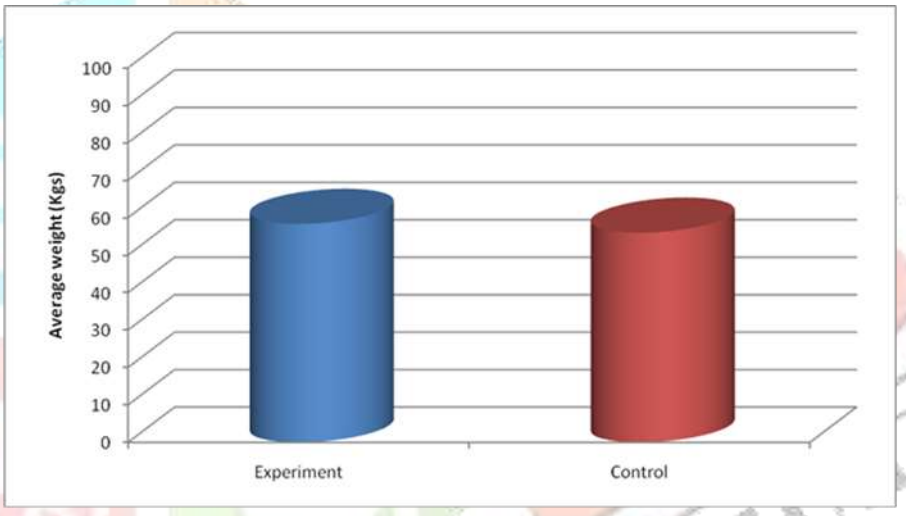
History of health related problem: None of the antenatal mothers in both experimental and control group was not have any history related to health problem after conception i.e. 32(100%) and 32(100%) respectively

History of medication: None of the antenatal mothers in both experimental and control group was having history of medication i.e. 32(100%) and 32(100%) respectively

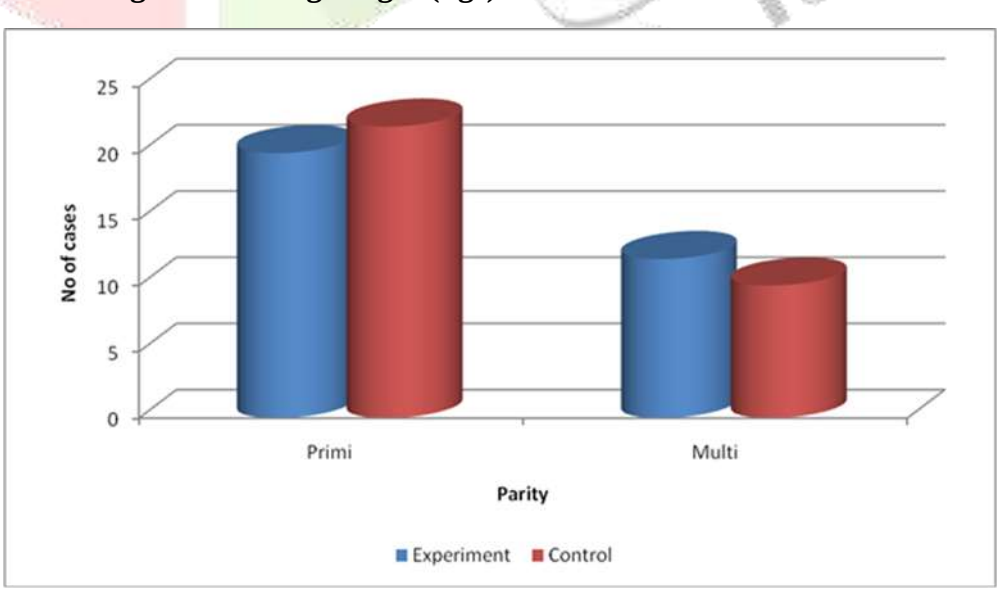
History related to nausea and vomiting: Majority of antenatal mothers in experimental and control group were not having complaints of Nausea and vomiting i.e. 31(96.9%) and 29(90.6%) respectively. Only 1(3.1%) in experimental group and 3(9.4%) in control group were having complaints of nausea and vomiting



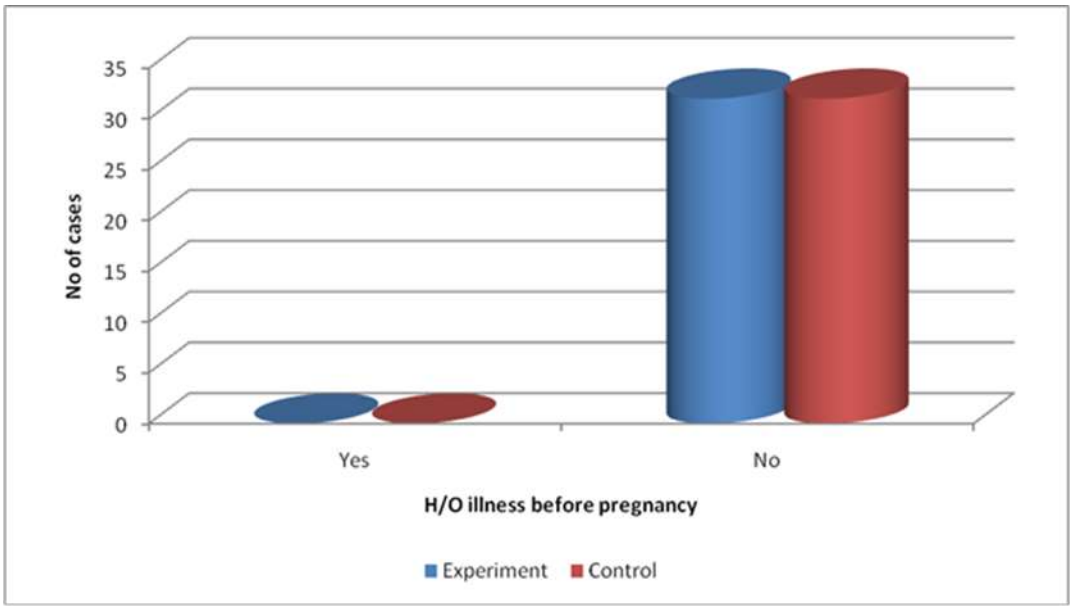
GRAPH 4: Bar diagram showing duration of pregnancy (months) wise distribution of antenatal mothers



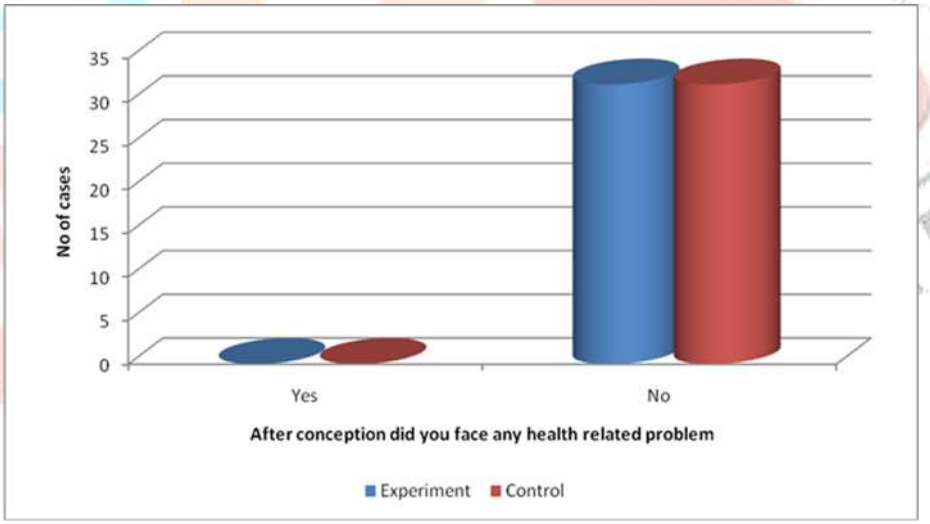
GRAPH 5: Bar diagram showing weight (kgs) wise distribution of antenatal mother in study



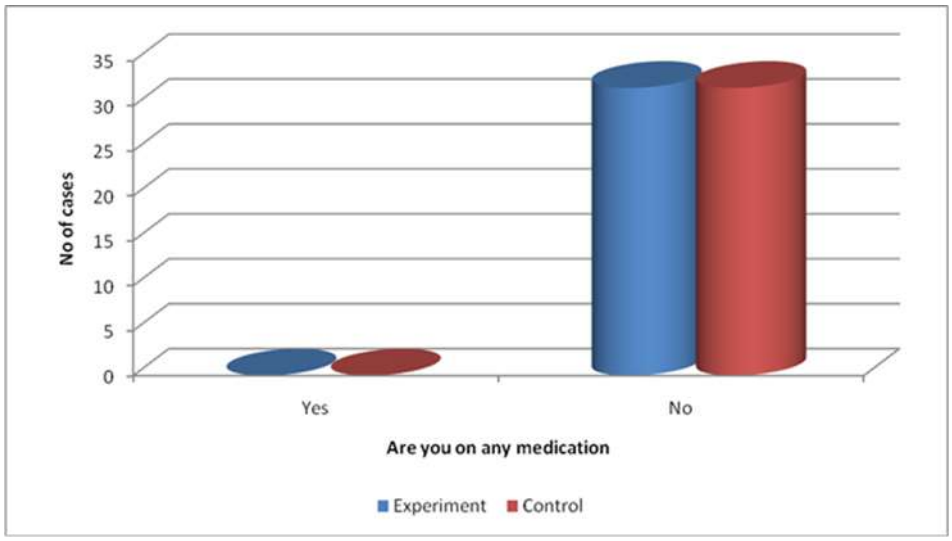
GRAPH 6: Bar diagram showing parity wise distribution of antenatal motheres in the study.



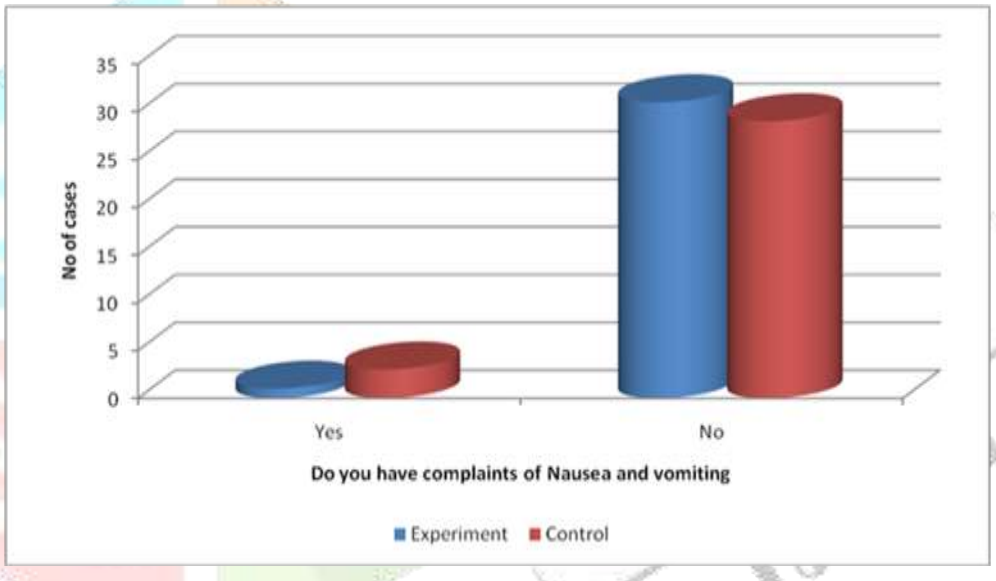
GRAPH 7: Bar diagram showing history of illness wise distribution of antenatal mothers before pregnancy in study



GRAPH 8: Bar diagram showing distribution of antenatal mothers on the basis of history of health related problem



GRAPH 9: Bar diagram showing distribution of antenatal mothers on the basis of history of medication



GRAPH 10: Bar diagram showing distribution of antenatal mothers on the basis of history related to nausea and vomiting

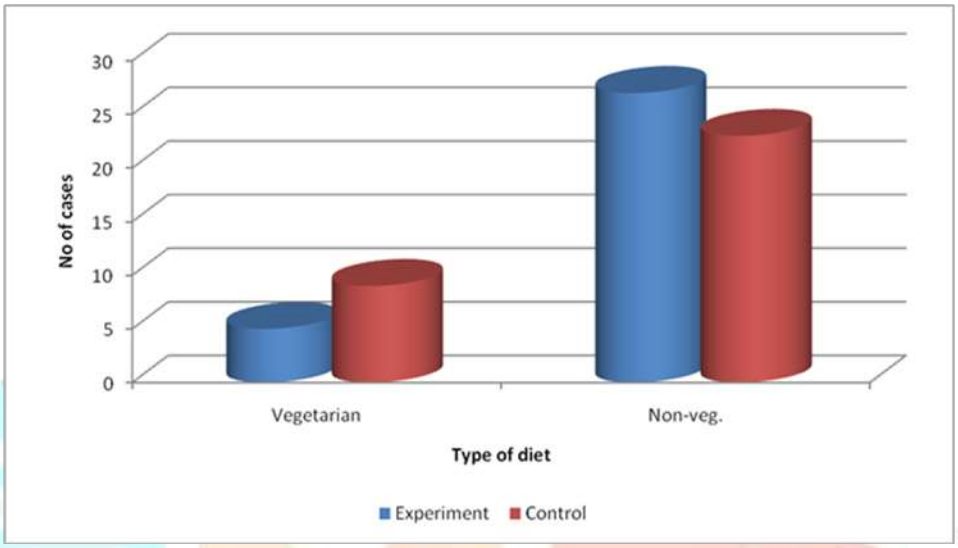
Section 1(C): Description of diet history during antenatal period

Table 1(C): Description of diet history during antenatal period

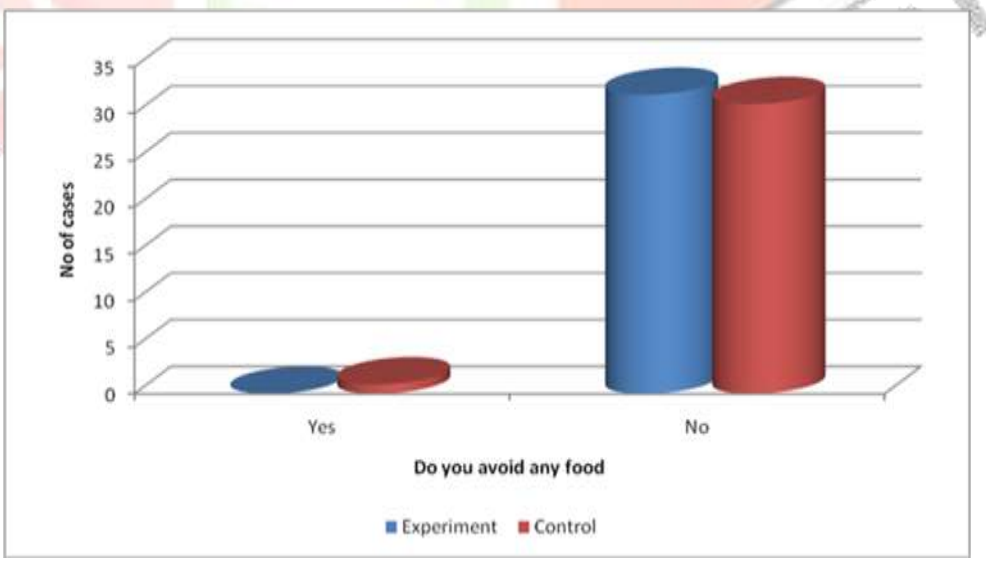
n=64

	Parameters	**Experiment f(%) n=32**	**Control f(%) n=32**
Type of diet	Vegetarian	5 (15.6)	9 (28.1)
	Non-veg.	27 (84.4)	23 (71.9)
Food avoidance	Yes	0	1 (3.1)
	No	32 (100)	31 (96.9)
Food allergy	Yes	0	0
	No	32 (100)	32 (100)
Water intake in each day	Up to 5 glass	4 (12.5)	5 (15.6)
	6 – 10 glass	21 (65.6)	22 (68.7)
	>10 glass	7 (21.9)	5 (15.6)
Meal pattern in each day	2times	2 (6.3)	0
	3 times	29 (90.6)	28 (87.5)
	>3times	1 (3.1)	4 (12.5)
History of tea intake in each day	Never	13 (40.6)	11 (34.4)
	1 cup/day	15 (46.9)	15 (46.9)
	2-3 cups/day	4 (12.5)	6 (18.7)
History of fruit intake in each day	Never	4 (12.5)	11 (34.4)
	Once a day	24 (75)	17(53.12)
	Twice a day	3 (9.4)	4 (12.5)
	Thrice a day	1 (3.1)	0
History of green leafy vegetables intake in each day	Once a day	19 (59.4)	24 (75)
	Twice a day	13 (40.6)	7 (21.9)
	Once a week	0	1 (3.1)
History of meat, fish,	Once a week	24 (75)	19 (59.4)

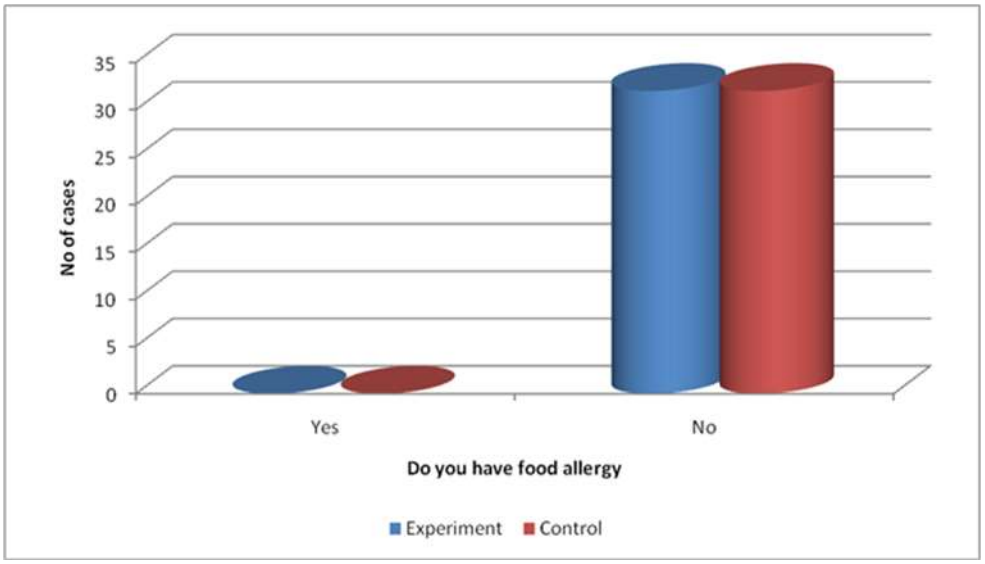
chicken intake in a week	Twice a week	2 (6.3)	5 (15.6)
	Not applicable	6 (18.7)	8 (25)
History of dessert and sweet intake in a week	Once a week	32 (100)	32 (100)



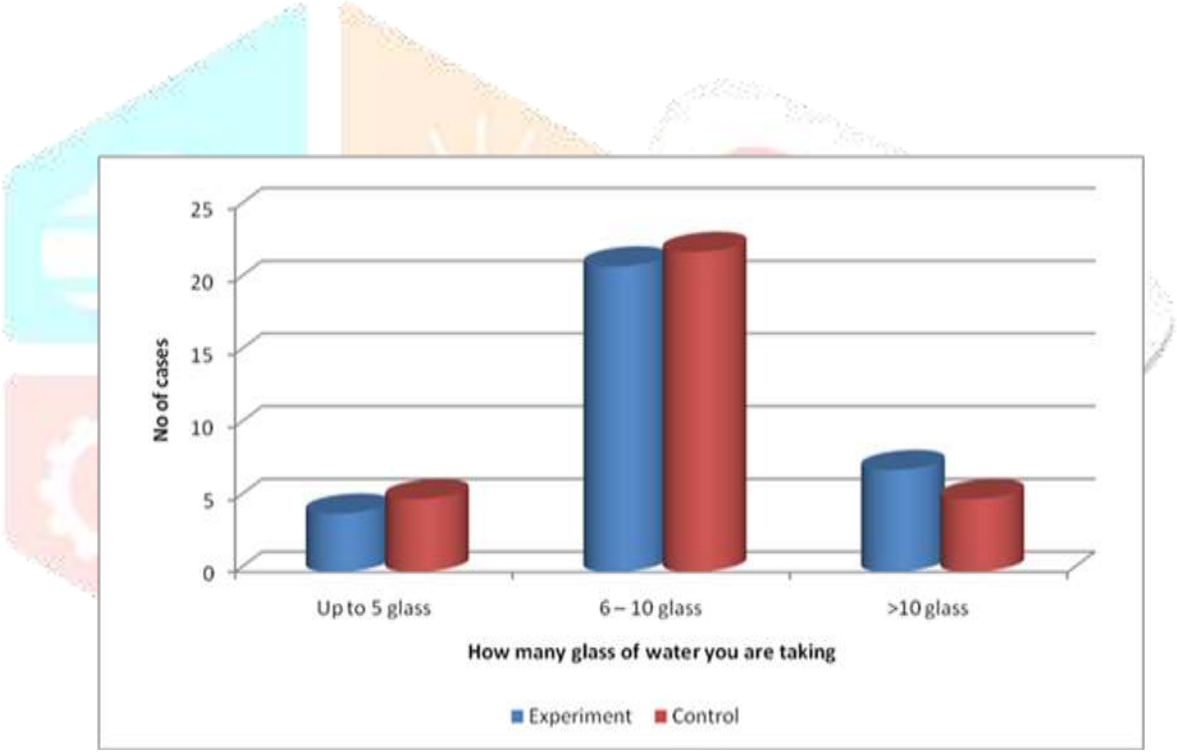
GRAPH 11: Bar diagram showing the type of diet wise distribution of antenatal mothers in study



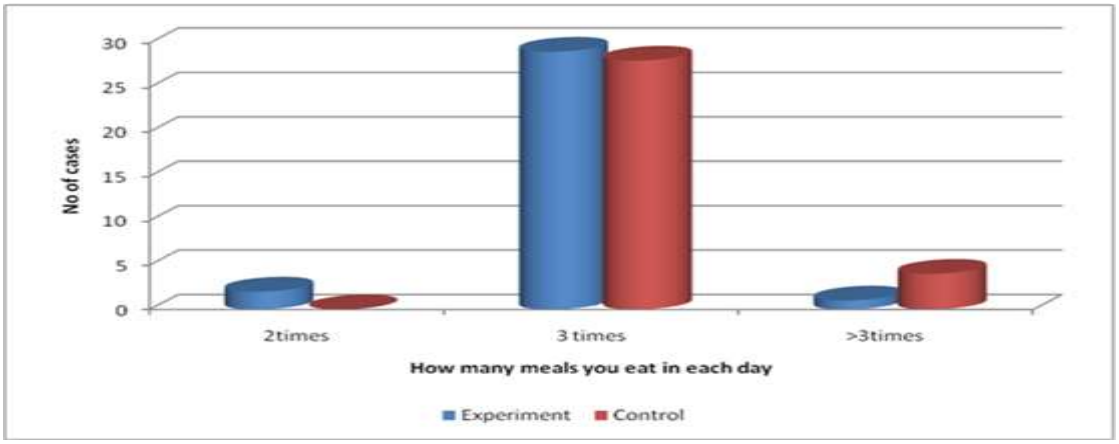
GRAPH 12: Bar digram showing distribution of antenatal mothers on the basis of food avoidance in study



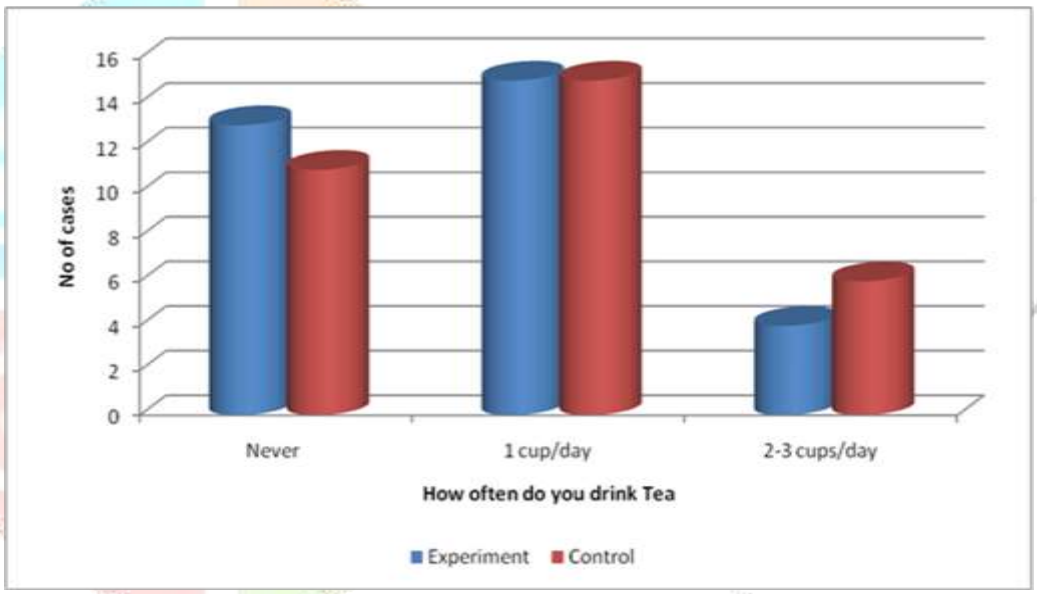
GRAPH 13: Bar diagram showing the distribution of antenatal mothers on the basis of food allergy



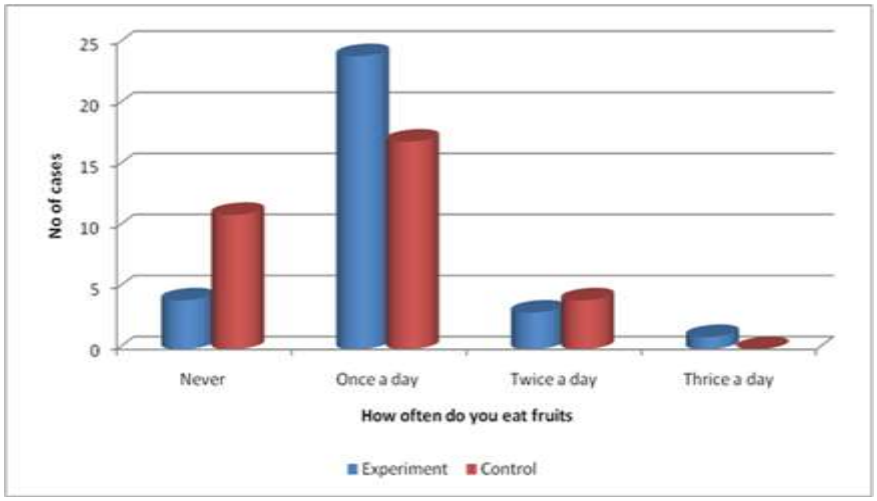
GRAPH 14: Bar daigram showing distribution of antenatal mothers on the basis of water intake in each day



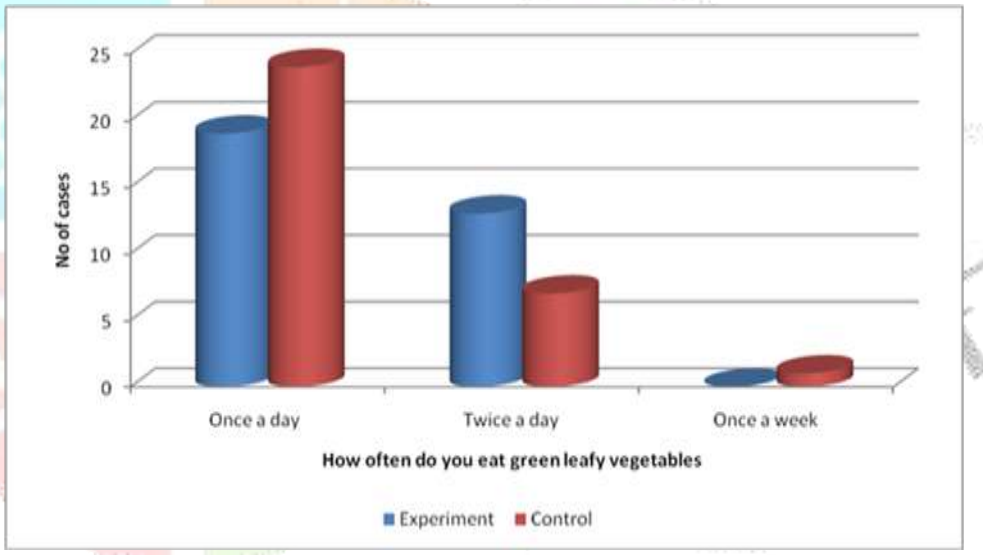
GRAPH 15: Bar diagram showing distribution of antenatal mothers on the basis of meal pattern in each day



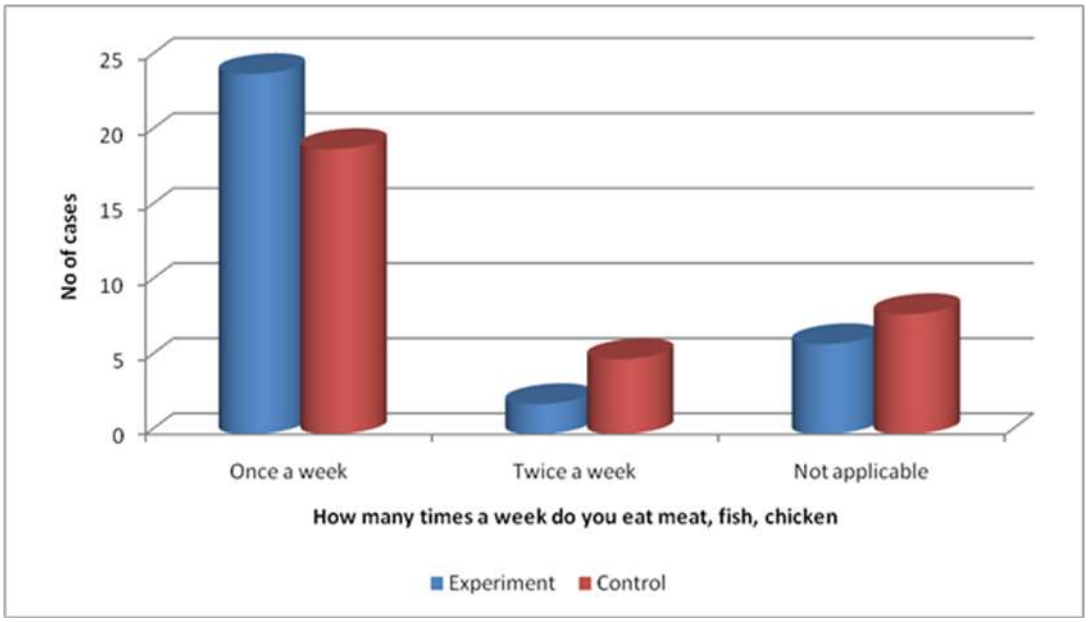
GRAPH 16: Bar diagram showing distribution of antenatal mother on basis of history of tea intake in each day



GRAPH 17: Bar diagram showing distribution of antenatal mother on the basis of intake of fruit each day.



GRAPH 18: Bar diagram showing distribution of antenatal mother on the basis of history of green leafy vegetables intake in each day



GRAPH 19: Bar diagram showing distribution of antenatal mother on the basis of history of meat, fish, chicken intake in a week

Section 1(D): Description of history of elimination pattern during antenatal period

Table 1(D): Description of history of elimination pattern during antenatal period

n=64

	Parameters	**Experiment (%) (n=32)**	**Control (%) (n=32)**
No of bowel movement before pregnancy	1	31 (96.9)	31 (96.9)
	2	1 (3.1)	1 (3.1)
No of bowel movement during pregnancy	0	8 (25)	6 (18.7)
	1	20 (62.5)	19 (59.4)
	2 & above	4 (12.5)	7 (21.9)
Complaints of constipation before the pregnancy	Yes	0	0
	No	32 (100)	32 (100)
Complaint of pile/ hemorrhoids during pregnancy	Yes	0	0
	No	32 (100)	32 (100)

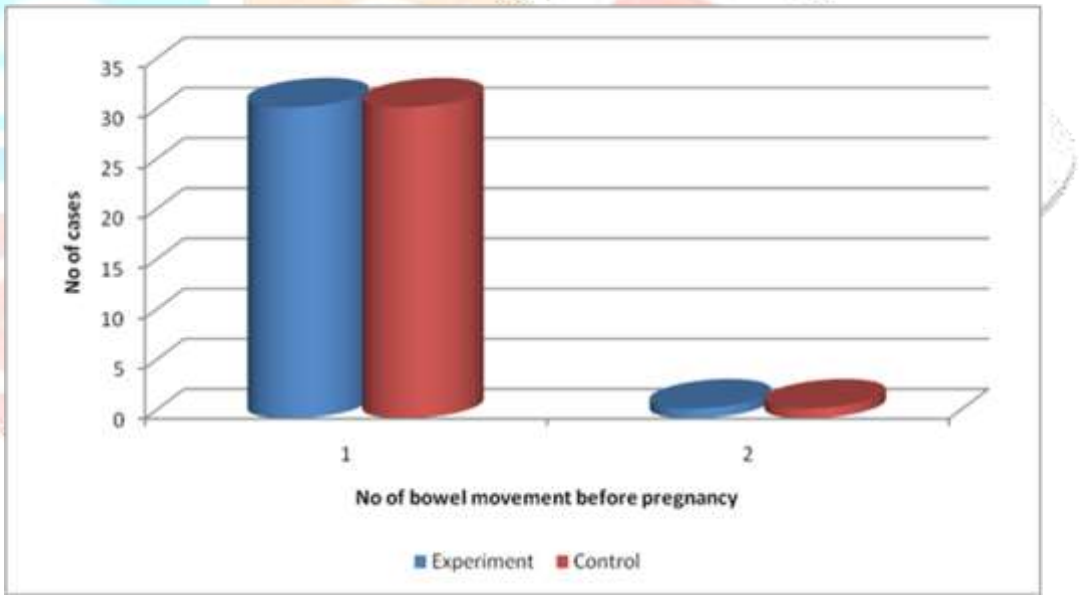
Table 1(D) shows that:

No of bowel movement before pregnancy: Majority of antenatal women in experimental and control group were having no. of bowel movement 1 before pregnancy i.e. 31(96.9%) and 31(96.9%) respectively. 1(3.1%) and 1(3.1%) of antenatal mothers in experimental and control group were having no. of bowel movement 2 before pregnancy

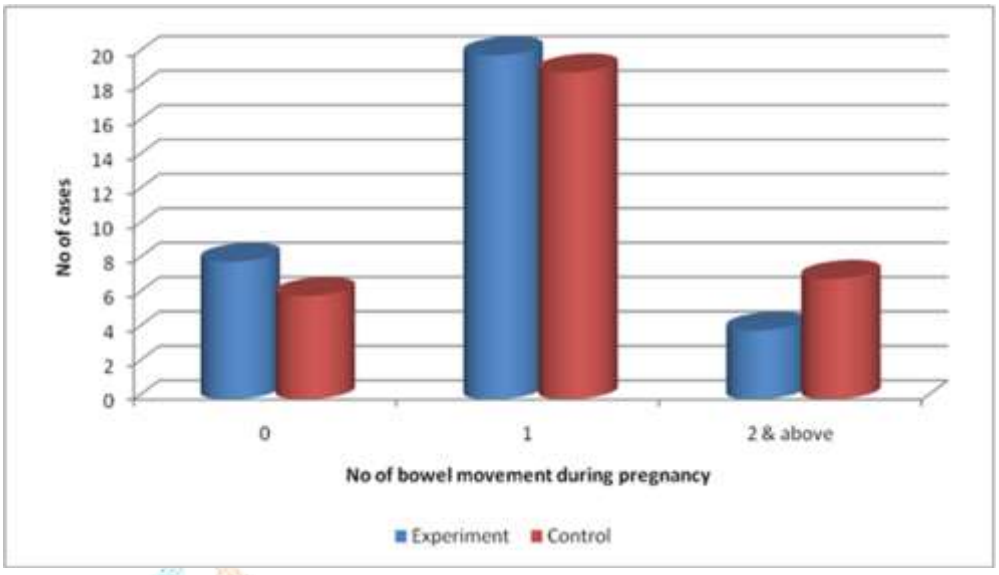
No of bowel movement during pregnancy: Majority of antenatal women in experimental and control group were having no. of bowel movement 1 during pregnancy i.e. 20(62.5%) and 19(59.4%) respectively. 8(25%) and 6(18.7%) of antenatal mothers in experimental and control group were not having any bowel movement during Pregnancy. 4(12.5%) and 7(21.9%) of antenatal women in experimental and control group were having no. of bowel movement 2 and above during pregnancy respectively.

Complaints of constipation before the pregnancy: All antenatal women in experimental and control group were not having complaints of constipation before the pregnancy i.e. 32(100%) and 32(100%) respectively.

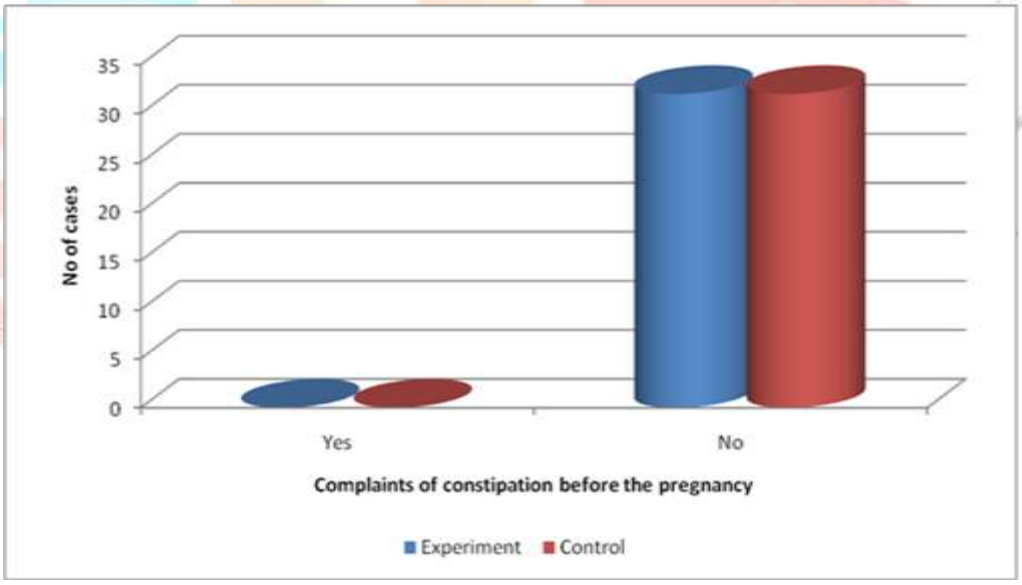
Complaint of pile/ hemorrhoids during pregnancy: All antenatal women in experimental and control group were not having complaints of pile/ hemorrhoids during pregnancy i.e. 32(100%) and 32(100%) respectively.



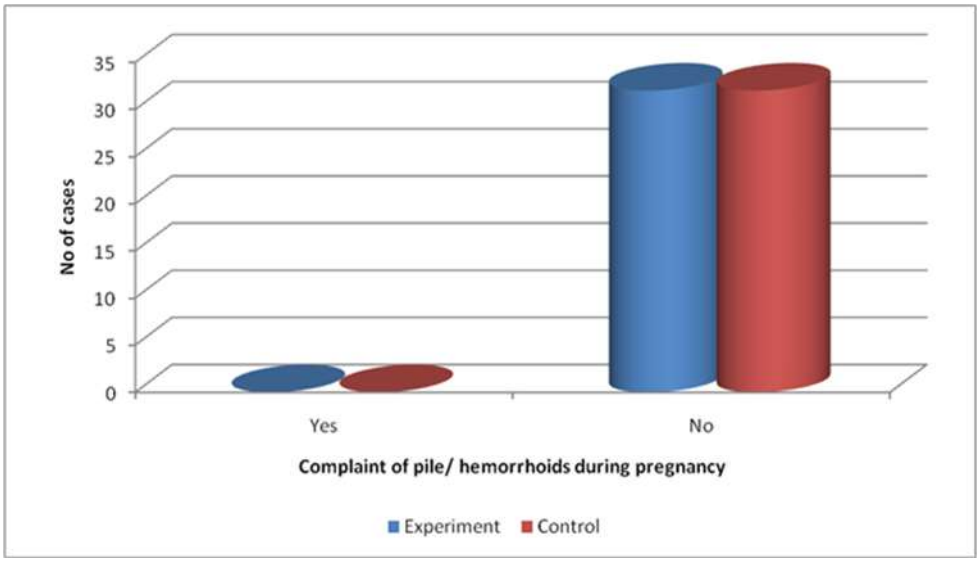
GRAPH 20: Bar diagram showing distribution of antenatal mothers on the basis of No. of bowel movement before pregnancy



GRAPH 21: Bar diagram showing distribution of antenatal mothers on the basis of No. of bowel movement during pregnancy



GRAPH 22: Bar diagram showing distribution of antenatal mothers on the basis of complaints of constipation before pregnancy



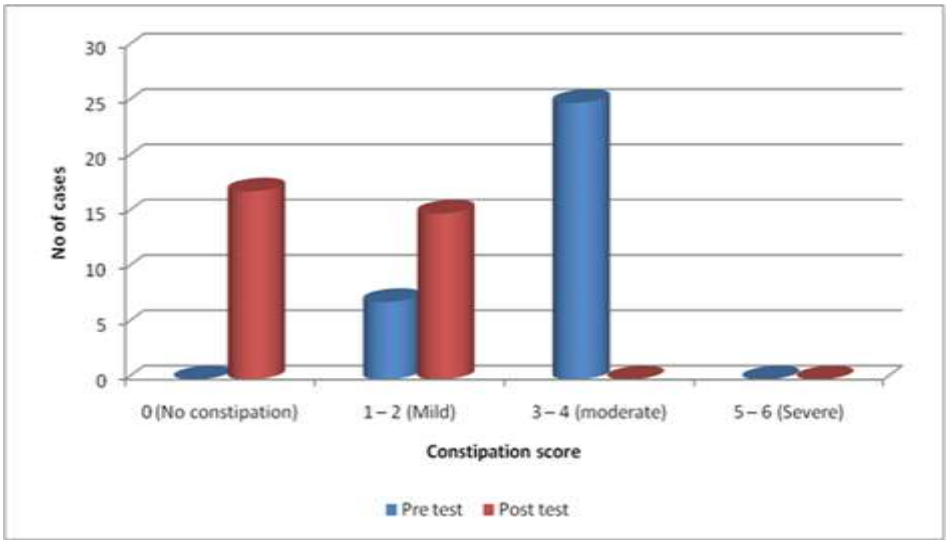
GRAPH 23: Bar diagram showing distribution of antenatal mothers on the basis of complaints of pile/ hemorrhoids during pregnancy in study

Section II: Description of pre-test and post-test prevalence rate of constipation among antenatal mothers

Table 2: Assess the prevalence rate of constipation among antenatal mothers in experiment group

Constipation score	**Pre- test f(%)**	**Post- test f(%)**
0 (No constipation)	0	17 (53.1)
1 – 2 (Mild)	7 (21.9)	15 (46.9)
3 – 4 (moderate)	25 (78.1)	0
5 – 6 (Severe)	0	0
Total	32 (100)	32 (100)

Table 2 shows that in pre-test 25(78.1%) of cases had moderate constipation, while 7(21.9%) cases had mild constipation and none of cases had constipation or sever constipation. In post-test 15(46.9%) of cases mild constipation, 17(53.1%) cases in had no constipation and none had moderate or severe constipation.

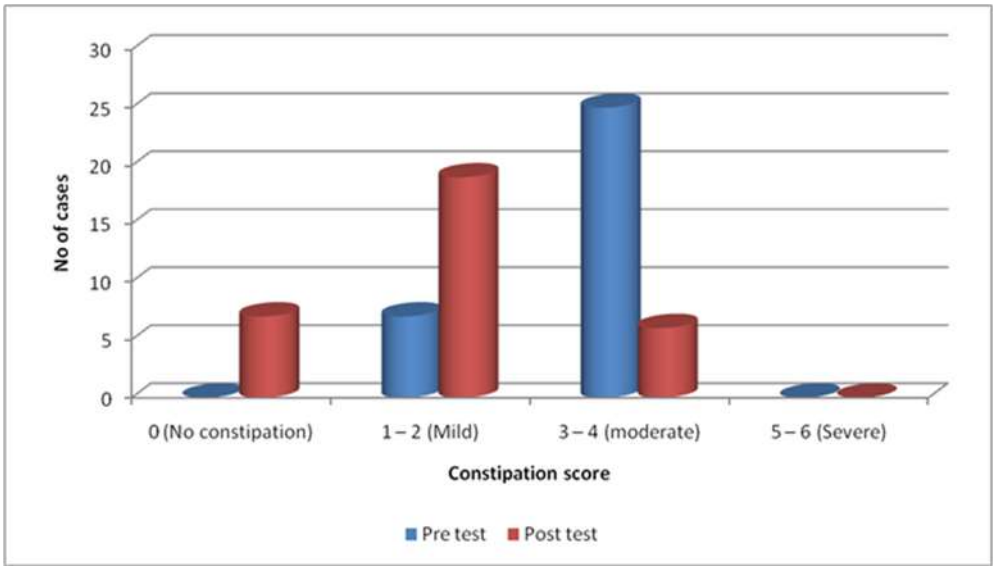


GRAPH 24: Bar diagram showing prevalence rate of constipation among antenatal mothers in experiment group

Table 3: Assess the prevalence rate of constipation among antenatal mothers in control group

Constipation score	Pre-test (%)	Post-test (%)
0 (No constipation)	0	7 (21.9)
1 – 2 (Mild)	7 (21.9)	19 (59.4)
3 – 4 (moderate)	25 (78.1)	6 (18.7)
5 – 6 (Severe)	0	0
Total	32 (100)	32 (100)

Table 3 shows that in pre-test 25(78.1%) of cases had moderate constipation, 7(21.9%) of cases had mild constipation and none of cases had constipation or severe constipation. In post-test 6(18.7%) of cases had moderate constipation, 19(59.4%) of cases had mild constipation, 7(21.9%) of cases had no constipation and none of case had sever constipation.



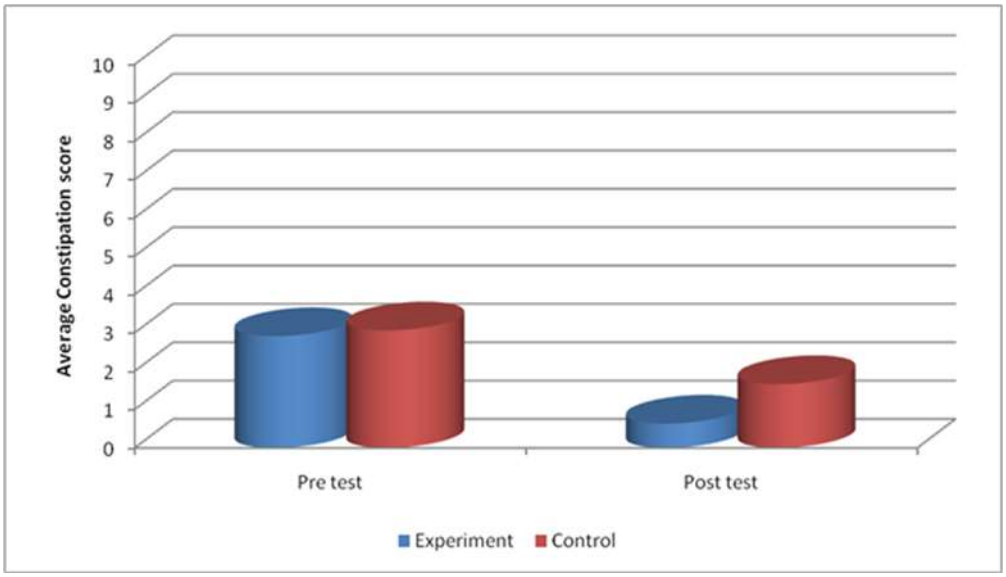
GRAPH 25: Bar diagram showing prevalence rate of constipation among antenatal mothers in control group

SECTION III: Analysis of effect of the diet counselling and exercise on constipation among antenatal mothers

Table 4: Comparison of diet counselling and exercise on constipation score among antenatal mothers in experiment and control group

Constipation score	Experiment (n=32)		Control(n=32)		MW test Z Value	P Value
	Mean	SD	Mean	SD		
Pre test	2.91	.588	3.06	.716	0.95	0.35
Post test	.63	.751	1.66	1.035	3.92	<0.0001

Table 4 shows that mean pretest constipation score was 2.91 in experimental group while 3.06 in control group. Whereas 0.63 was mean posttest constipation score of experimental group and 1.66 was mean posttest constipation score of control group. Pretest mean constipation score was less in experimental group while posttest mean constipation score was significantly less as P >0.05 level of significance hence reject null hypothesis.

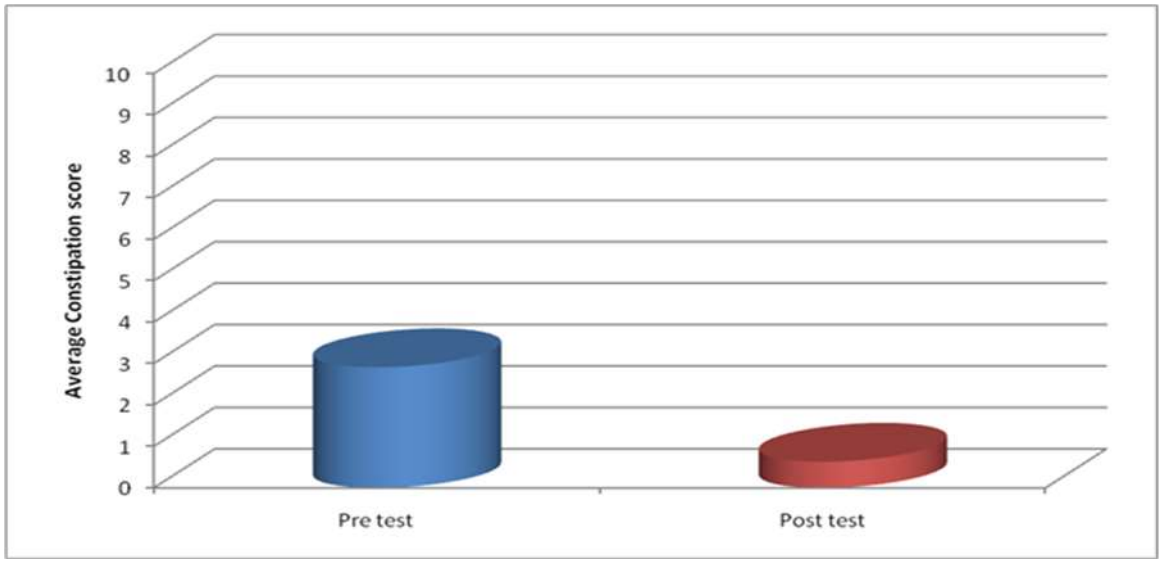


GRAPH 26: Bar diagram showing comparison effect of diet counselling and exercise on constipation score among antenatal mothers in experiment and control group

Table 5: Assess the effect of the diet counselling and exercise on constipation among antenatal mothers in experiment group

Parameter	Pre test		Post test		Wilcoxon Z Value	P Value
	Mean	SD	Mean	SD		
Constipation score	2.91	.588	.63	.751	5.01	<0.0001

Table 5 shows pretest mean constipation score was 2.91 in experimental group while 0.63 was posttest mean constipation score. Posttest mean constipation score was significantly decreased at 0.05 level of significance by applying Wilcoxon test result showed i.e. Z=5.01>1.96, hence researcher reject the null hypothesis as P<0.0001.

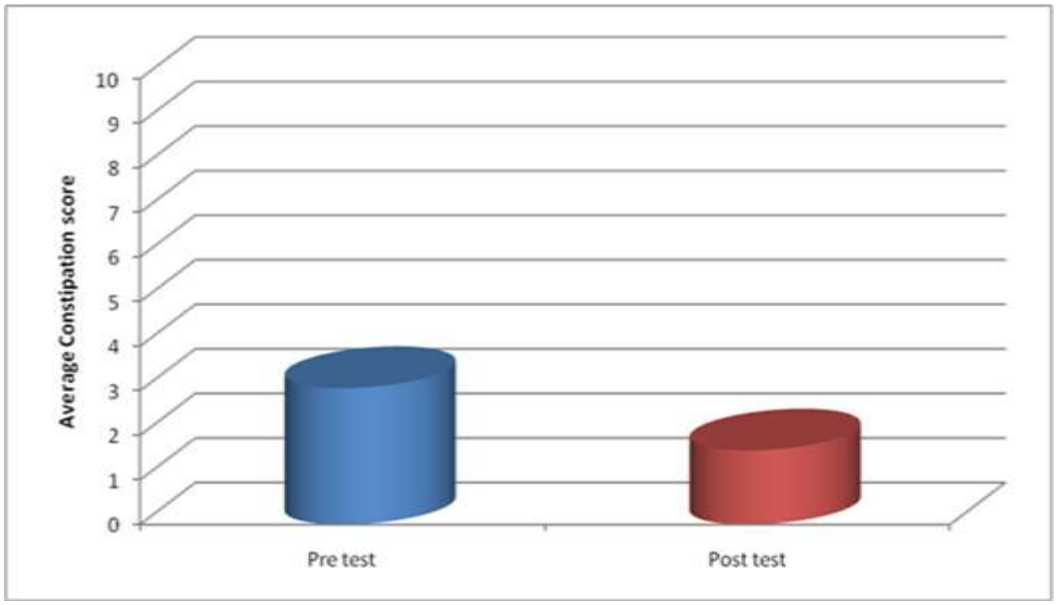


GRAPH 27: Bar diagram showing effect of the diet counselling and exercise on constipation among antenatal mothers in experiment group

Table 6: Assess the effect of the diet counselling and exercise on constipation among antenatal mothers in control group

Parameter	Pre test		Post test		Wilcoxon Z Value	P Value
	Mean	SD	Mean	SD		
Constipation score	3.06	.716	1.66	1.035	4.41	<0.0001

Table 6 shows mean pretest constipation score was 3.06 in experimental group while 1.66 was mean posttest constipation score. Posttest mean constipation score was significantly decreased from 3.06 to 1.66 i.e. by applying Wilcoxon test Z= 4.41>1.96, hence reject the null hypothesis as P<0.0001



GRAPH 28: Bar diagram showing effect of the diet counselling and exercise on constipation among antenatal mothers in control group

SUMMARY

Chapter IV deals with the analysis and interpretation of data collected for the study. In this chapter data included on the basis of demographical variables, pregnancy related data, diet related data, elimination pattern related data of antenatal mothers during pretest. All this data was analysed by inferential and descriptive statistics. Mean, SD, percentage, Mann-Whitney U test and Wilcoxon Z test was used in term of 0.05 level of significance to fulfill the objectives. After educational intervention constipation score was significantly decreased. This indicates that educational intervention was effective.

CHAPTER V

INTRODUCTION

MAJOR FINDINGS, DISCUSSION, CONCLUSION, IMPLICATION AND RECOMMEDATION

INTRODUCTION

Any research study cannot be considered complete till research finding have been propagated among concerned fraternity and other significant findings. It also includes the implications and recommendations for future study.

SUMMARY OF THE STUDY:

Any research would be incomplete without the communication of study finding among the concerned fraternity and significant others. This chapter deals with summary and discussion of findings of study, its implication to nursing and recommendations for future research in this field. The study was conducted with the purpose to improve the pregnancy outcome by improve knowledge.

PROBLEM STATEMENT:

"Effect of Diet counselling and Exercise on constipation among antenatal mothers."

OBJECTIVES OF STUDY:

1. To assess the prevalence rate of constipation among antenatal mothers
2. To assess the effect of the diet counselling and exercise on constipation among antenatal mothers

Investigator used Quasi-experimental study design. The sample selected for the study was 64 Antenatal mothers with complaints of constipation with second trimester onward (32 for experimental and 32 for control group). The tool utilized for data collection consisted of following sections:

- Section A: Semi-Structured interviewed questionnaire to assess the demographical variables which includes questionnaire related to age, education, family income, diet, exercise, bowel pattern.
- Section B: Modified Rome III criteria to assess the constipation among antenatal mothers

To ensure the content validity of the prepared tool, it was given to 21 experts. These experts included nursing teaching faculties – 19, statistician – 01, Dietitian – 01. Corrections given by the experts were incorporated in the tool. After that the validity and reliability of the tool was assessed. The reliability of tool was found 0.871. Hence tool was found to be reliable.

The pilot study was conducted from 6/01/2021 to 19/01/2021 with the purpose of testing the proficiency of the tool to use for data collection, and to assess the feasibility of the study and to decide the statistical analysis and practicability of research. The data collection for main study has been done from 23/01/2021 to 28/02/2021. 64 antenatal mothers with second trimester onwards, who fulfilled the criteria of the study, were participated in the study. As per inclusion criteria sample was selected, consent was obtained and assesses the effect of diet counselling and exercise on constipation among antenatal mothers. The data has been tabulated, coded and summarized. Analysis was done using descriptive and inferential statistics.

PROCESS OF DATA COLLECTION:

64 antenatal mothers in second trimester onward (32 for experimental group and 32 for control group) were selected based on the inclusion criteria by non-probability purposive sampling technique. Antenatal women under study will be giving diet counselling and exercise for constipation among antenatal mothers. Pretest conducted by using Modified Rome III criteria in both experimental and control group. Diet counselling and exercise demonstration given to only experimental group. Posttest will be conducting to both experimental and control group.

MAJOR FINDINGS OF STUDY

SECTION 1- Finding related to demographical data of antenatal mothers with constipation

Section 1 (A): Description of Socio-demographical variable data of antenatal mothers

- **Age**: Most of the antenatal mothers among experimental group and control group were in age between 20-25 years i.e. 15(46.9%) and 21(65.6%) respectively. 12(37.5%) of them were in age group of 26-30 years in experimental group whereas 10(31.2%) of them in control group. Only 5 (15.6%) of antenatal mothers were in age group of 31-36 years in experimental group and 1(3.1%) of them in control group.
- ❖ **Type of family:** 19(59.4%) and 23(71.9%) of antenatal mothers among experimental group and control group were belonged to joint family. Whereas 13(40.6%) of antenatal mothers were belonged to nuclear family in experimental group and 9(28.1%) of them in control group.
- ❖ **Family income:** All antenatal mothers were having family income >10,000 in both experimental and control group i.e. 32(100%) and 32(100%) respectively.
- ❖ All the antenatal mothers in both experimental and control group were educated and non-working.

Section 1 (B): Description of antenatal history of pregnant mothers

- **Duration of pregnancy in months:** mean of duration of pregnancy in experimental group was 6.88% months whereas in control group it was 6.78% months.
- **Weight(kg) at the time of pretest**: Mean of weight(kg) at the time of pretest was 58.31% in experimental group whereas in control group it was 55.97%
- **Parity:** Most of antenatal mothers in experimental group and control group were primigravidae mothers i.e. 20(62.5%) and 22(68.8%) respectively. Multigravida mothers were 12(37.5%) in experimental group and 10(31.2%) in control group
- **H/O illness before pregnancy:** None of the antenatal mothers in both experimental and control group did have any H/O illness before pregnancy i.e. 32(100%) and 32(100%) respectively.
- **History of health related problem:** None of the antenatal mothers in both experimental and control group did have any history related to health problem after conception i.e. 32(100%) and 32(100%) respectively
- **History of medication:** None of the antenatal mothers in both experimental and control group was having history of medication i.e. 32(100%) and 32(100%) respectively
- **History related to nausea and vomiting:** Majority of antenatal mothers in experimental and control group were not having complaints of Nausea and vomiting i.e. 31(96.9%) and 29(90.6%) respectively. Only 1(3.1%) in experimental group and 3(9.4%) in control group were having complaints of Nausea and vomiting.

Section 1 (C): Description of diet history during antenatal period

- **Type of diet:** Most of antenatal mothers in experimental and control group were Non-vegetarian i.e. 27(84.4%) and 23(71.9%) respectively whereas 5(15.6%) and 9(28.1%) of antenatal mothers in experimental and control group were vegetarian
- **Food avoidance:** Majority of antenatal mothers in experimental and control group were not avoided any food i.e. 32(100%) and 31(96.6%) respectively. Whereas 1(3.1%) antenatal mothers of control group were avoided onion and ginger.
- **Food allergy:** None of antenatal mothers in experimental and control group were having any food allergy i.e. 32(100%) and 32(100%) respectively.
- **Water intake in each day:** Most of antenatal mothers in experimental and control group were taking 6-10 glasses of water per day i.e. 21(65.6%) and 22(68.7%) respectively. 7(21.9%) and 5(15.6%) of antenatal mothers in experimental and control group were taking >10 glasses of water per day and 4(12.5%) and 5(15.6%) of antenatal mothers in experimental and control group were taking up to 5 glasses of water per day.
- **Meal pattern in each day:** Majority of antenatal mothers in experimental group were taking 3 times a meal in each day i.e. 29(90.6%), then 2(6.3%) of them were taking 2 times a meal per day whereas 1(3.1%) of them were taking >3 times a meal per day. Majority of antenatal mothers in control group were taking 3 times a meal per day i.e. 28(87.5%), then 4 (12.5%)of them were taking > 3 times a meal per day and no one had taking 2 times a meal per day from control group.
- **History of tea intake in each day:** Most of antenatal mothers in experimental and control group were taking 1cup of tea per day i.e. 15(46.9%) and 15(46.9%) respectively. Whereas 13(40.6%) and 11 (34.4%) of them were never taking tea. 4(12.5%) and 6(18.7%) of antenatal mothers of experimental and control group were taking 2-3 cups of tea per day.
- **History of fruit intake in each day:** Majority of antenatal mothers in the experimental group were taking once a day fruits i.e. 24(75%), 4 (12.5%) of antenatal mothers were never taking fruits. 3(9.4%) of antenatal mothers were taking twice a day fruits and 1(3.1%) of antenatal mothers were taking thrice a day fruits. Majority of antenatal mothers in control group were taking once a day fruits i.e. 17(53.12%), 11(34.4%) of antenatal mothers were never taking fruits. 4(12.5%) of antenatal mothers were taking twice a day fruits and no one were taking thrice a day fruits.
- **History of green leafy vegetables intake in each day:** Most of antenatal mothers in experimental group were taking green leafy vegetable once a day i.e. 19(59.4%), 13(40.6%) of antenatal mothers were taking green leafy vegetables twice a day, No one was taking once a week green leafy vegetables. Majority of antenatal mothers in control group were taking once a day green leafy

vegetables i.e. 24(75%). 7(21.9%) of antenatal mothers were taking green leafy vegetable twice a day and 1(3.1%) of antenatal mothers were taking once a week green leafy vegetables.

- **History of meat, fish, chicken intake in a week:** Majority of antenatal women in experimental and control group were eating meat, fish, chicken in once a week i.e. 24(75%) and 19(59.4%). 6(18.7%) and 8(25%) of antenatal mothers from experimental and control group were not eating meat, fish, chicken. 2(6.3%) and 5(15.6%) of antenatal women from experimental and control group were eating meat, fish, chicken twice a week.
- **History of dessert and sweet intake in a week:** All antenatal women from experimental and control group were eating dessert and sweet once a week i.e. 32(100%) and 32(100%) respectively.

Section 1 (D): Description of history of elimination pattern during antenatal period

- **No of bowel movement before pregnancy:** Majority of antenatal women in experimental and control group were having no. of bowel movement 1 before pregnancy i.e. 31(96.9%) and 31(96.9%) respectively. 1(3.1%) and 1(3.1%) of antenatal mothers in experimental and control group were having no. of bowel movement 2 before pregnancy
- **No of bowel movement during pregnancy:** Most of antenatal women in experimental and control group were having no. of bowel movement 1 during pregnancy i.e. 20(62.5%) and 19(59.4%) respectively. 8(25%) and 6(18.7%) of antenatal mothers in experimental and control group were not having any bowel movement during Pregnancy. 4(12.5%) and 7(21.9%) of antenatal women in experimental and control group were having no. of bowel movement 2 and above during pregnancy respectively.
- **Complaints of constipation before the pregnancy:** All antenatal women in experimental and control group were not having complaints of constipation before the pregnancy i.e. 32(100%) and 32(100%) respectively.
- **Complaint of pile/ hemorrhoids during pregnancy:** All antenatal women in experimental and control group were not having complaints of pile/ hemorrhoids during pregnancy i.e. 32(100%) and 32(100%) respectively.

Section II – Description of prevalence rated of constipation among antenatal mothers

- **Prevalence rate of constipation among antenatal mothers in experiment group**
  In present study, pre-test 25(78.1%) of cases had moderate constipation, while 7(21.9%) cases had mild constipation and none of cases had constipation or sever constipation. In post-test 15(46.9%) of cases mild constipation, 17(53.1%) cases in had no constipation and none had moderate or severe constipation.

- **Prevalence rate of constipation among antenatal mothers in control group**
  In pre-test 25(78.1%) of cases had moderate constipation, 7(21.9%) of cases had mild constipation and none of case had constipation or severe constipation. In post-test 6(18.7%) of cases had moderate constipation, 19(59.4%) of cases had mild constipation, 7(21.9%) of cases had no constipation and none of case had sever constipation.

Section III – Description of effect of the diet counselling and exercise on constipation among antenatal mothers

- **Comparison of diet counseling and exercise on constipation score among antenatal mothers in experiment and control group**
  In the present study, mean pretest constipation score was 2.91 in experimental group while 3.06 in control group. Whereas 0.63 was mean posttest constipation score of experimental group and 1.66 was mean posttest constipation score of control group. Pretest mean constipation score was less in experimental group while posttest mean constipation score was significantly less as P >0.05 level of significance hence reject null hypothesis.

- **Effect of the diet counseling and exercise on constipation among antenatal mothers in experiment group**
  Mean pretest constipation score was 2.91 in experimental group while 0.63 was mean posttest constipation score. Posttest constipation score was significantly decreased i.e. 78.35% by applying Wilcoxon test Z=5.01>1.96, reject the null hypothesis as P<0.0001
- **Effect of the diet counseling and exercise on constipation among antenatal mothers in control group**
  Mean pretest constipation score was 3.06 in experimental group while 1.66 was mean posttest constipation score. Posttest constipation score was significantly decreased i.e. 45.75% by applying Wilcoxon test Z= 4.41>1.96, reject the null hypothesis as P<0.0001

DISCUSSION

Section I- Finding related to demographical characteristics of the participant,

In the preset study, most antenatal mothers were in the age of 20-25 years. All the antenatal mothers were educated and nonworking. Majority of them were belonged to joint family and all of them were having family income >10,000. Also Mean of duration of pregnancy of experimental group was 6.88% months whereas in control group it was 6.78% months showing the constipation high score of constipation. Along with this present study 21(65.6%) of antenatal mothers were taking 6-10 glasses of water per day also 24(75%) of them were taking once a day fruits meanwhile 19(59.4%) of antenatal mothers were taking once a day green leafy vegetables.

- ✓ A similar study conducted by Shi W, Xu X, Zhang Y, Guo S, Wang J, Wang J (2015) stated that the prevalence rate of constipation in women with age more than 35 years was 22.49%, in women aged between 25 to 34 years and less than 25 years was 8.22% and 1.22% respectively. Also those women with masters and high degree shown higher prevalence rate of constipation i.e. 27.22%. [24]
- ✓ Other similar study conducted by Bimba, Patil GL, AS Shridevi, SN Praveena, B Asha, Mandava s (2017) stated that the prevalence rate of constipation during second trimester was 34%. [23]
- A similar article published by American pregnancy association (2020) stated the importance water during pregnancy. They suggested drinking of 10 to 12 glasses of water per day can help to eliminate the waste from body and relieve the constipation during pregnancy by making the stool soft and increased bowel movement [12]

SECTION II – Finding related prevalence rated of constipation among antenatal mothers

- **Prevalence rate of constipation among antenatal mothers in experiment group**
  In the present study, Majority of antenatal mothers had moderate constipation i.e. 25(78.1%), 7(21.9%) had mild constipation and no one had no constipation or sever constipation in pre-test while in post-test 15(46.9%) of antenatal mothers had mild, 17(53.1%) had no constipation and none had moderate or severe constipation.
- **prevalence rate of constipation among antenatal mothers in control group**
  In pre-test 25(78.1%) of cases had moderate constipation, 7(21.9%) of cases had mild constipation and none of case had no constipation or severe constipation. In post-test 6(18.7%) of cases had moderate constipation, 19(59.4%) of cases had mild constipation, 7(21.9%) of cases had no constipation and none of case had sever constipation.

- ✓ A similar an observation survey conducted by Kuronen M, Hantunen s, Alanne L, Kokki H, Saukko C, Sjovall S(2020) stated that prevalence rate of constipation in pregnant women was 40% and the study concluded that prevalence rate of constipation was two-three fold higher among pregnant women [22]
- ✓ A similar experimental study conducted by Bimba, Patil GL, AS Shridevi, SN Praveena, B Asha, Mandava S (2017) the study result shown that prevalence of constipation in the antenatal mothers was 24%. Prevalence rate of constipation was 18%, 34% and 31% in first, second, third trimester. The

study concluded that the prevalence rate of constipation is higher in pregnant women than in general population [23]

- ✓ A similar longitudinal research study study conducted by Bradley C.S, Kennedy C.M, Turcea A.M, Rao S.S, Nygaard I.E. (2007) to estimate prevalence rate and risk factors of constipation during pregnancy. The result revealed that prevalence rate of constipation during first, second and third trimester was 24% (with 95% CI 16 % - 33%), 26% (with 95% CI 17% -38%), and 16% (with 95% CI 8 – 26%) And 24% (with 95% CI 6 – 23%) in 3 months of postpartum period [35]

- **Comparison of diet counseling and exercise on constipation score among antenatal mothers in experiment and control group**

  In pretest mean constipation score was less in experimental group than control group but not statistical significant by MW test Z value 0.95<1.96 so accepted null hypothesis as P >0.05 while in post-test, mean constipation score was significantly less in experimental group than control group by MW test Z value 3.92>1.96 so rejected null hypothesis as P<0.0001

Section III - Finding related to effect of the diet counselling and exercise on constipation among antenatal mothers

- **Effect of the diet counseling and exercise on constipation among antenatal mothers in experiment group**

  Pretest mean constipation score was 2.91 in experimental group while 0.63 was posttest mean constipation score. Posttest mean constipation score was significantly decreased at 0.05 level of significance by applying Wilcoxon test result showed i.e. Z=5.01>1.96, hence researcher reject the null hypothesis as P<0.0001.

- **effect of the diet counseling and exercise on constipation among antenatal mothers in control group**

  Mean pretest constipation score was 3.06 in experimental group while 1.66 was mean posttest constipation score. Posttest mean constipation score was significantly decreased from 3.06 to 1.66 i.e. by applying Wilcoxon test Z= 4.41>1.96, hence reject the null hypothesis as P<0.0001

  - ✓ **A** randomized controlled clinical trial **conducted by Shafaei FS, Mirghafourvand M, Havizari S (2020)** among 108 pregnant mothers to know the effect of prenatal counselling on breastfeeding self-efficacy and frequency of breastfeeding mothers. The investigator found that significant difference between experimental and control group in terms of breast feeding self-efficacy on day 15 (p<0.001) an 2 (p<0.001) and 4 (p<0.001) month after delivery also frequency of breastfeeding problems on the 15 (p=0.008), 2 (p<0.001) and 4 (p<0.001) after delivery was significantly different in both groups. The investigator concluded that prenatal counselling was effective to improve mothers self-efficacy related to breastfeeding and relieve breastfeeding problems during postnatal period. This study also shown that counselling was effective in pregnancy period [58]
  - ✓ A similar article stated by Salem. H. (2021) recommended the way to deals with constipation during pregnancy. He stated that apple juice, pear juice and prune juice were helps to relieve the constipation in pregnancy. Author also suggested that intake of high fiber foods and fluid intake can also relieve constipation in pregnancy [38]
  - ✓ A similar a triple-blind randomized controlled trial study conducted by Mirghafourvand M, Homayouni RA, Mohammad Alizadeh CS, Fardiazar Z, Shokri K. (2016) The researcher in this study concluded that both probiotics and conventional yogurt can improve the symptoms of constipation during pregnancy [5]
  - ✓ An article published by Bowen M (2020) stated about the natural remedies to treat constipation during pregnancy. He mentioned that walking for 20 to 30 minutes can improve the digestion and ultimately relieve the constipation in during pregnancy. He also stated that waking helps for improve the gut motility and that reduced the constipation in pregnancy.[53]

DELIMITATIONS OF THE STUD

Present study is delimited following aspects,

Difficulties encounter during telephonic follow-up session of diet counselling and exercise due to dropped down rat of samples increased and period of data collection was extended

IMPLICATIONS OF THE STUDY

The findings of the study have implication in the areas of nursing education, nursing practice, nursing administration and nursing research.

NURSING EDUCATION

- Nursing curriculum plays a vital role in the preparation of future nurses. It must emphasize on preventive aspects.
- The nursing curriculum needs to be strengthening nursing students to identify the cases of constipation, assess the sign, symptoms and to provide supporting education to antenatal mothers to prevent complications.
- Nursing curriculum should incorporate activities like preparation of booklets, hand-outs, charts and teaching material to providing awareness on constipation among antenatal mothers.
- Every nursing student should be motivated to provide care and opportunities during the training to plan and conduct health education for antenatal mothers on constipation.

NURSING PRACTICES

- The role of midwifes is constantly changing. These changes are the results of evolving concepts of wellness and illness.
- A nurse can play an important role in the prevention of constipation by creating awareness among antenatal mothers by providing knowledge regarding constipation during pregnancy.
- Diet counselling and exercise demonstration can be used as teaching strategy in the hospital and community for antenatal mothers so women can be aware about care to be taken to prevent constipation and its complication during pregnancy.
- The community health nurse can teach the antenatal mothers about sign and symptoms of constipation and its management at household level.

NURSING ADMINISTRATION

- The nursing administration has a responsibility to provide nurses with substantial continuing educational opportunities.
- Necessary administrative support should be provided for the development of educational programs.
- Nursing personnel should be motivated to devote their time for development of educational material such as posters, pamplets and booklets which will makes the educational program successful.
- The root cause for these health problems is people's ignorance regarding health practices. So, the administrative department of nursing at the institutional, local, state should focus their attention on making the public aware of the ill effect of unhealthy life styles.

NURISNG RESEARCH

- Nursing research is an essential aspect of nursing as it uplifts the profession and develops new norms and a body of knowledge. Very few research studies have been conducted on constipation during pregnancy.
- The research design, findings and the tool can be used as avenues for the further research. Findings of this will provide baseline data for management of constipation and necessary lifestyle modifications and the strategies adopted to educate antenatal mothers for prevention of complications and thus it can be used for further research.
- It highlights the areas which require further exploration. The suggestions and recommendations can be utilized by other investigator conducting further studies in the same field.

RECOMMENDATION

Keeping in view the findings of the study, following recommendations are made:

1. A similar study can be conducted for the large sample size; thereby findings can be generalized for large population
2. A comparative study can be conducted to assess the effect of diet counselling and effect of exercise on constipation among antenatal mothers
3. A study can be conducted by using different educational material such as, booklets, handouts, posters, etc
4. A comparative study can be conducted to assess the effect of diet counselling and effect of exercise on constipation among antenatal mothers
5. A similar study can be conducted in community setting.
6. The similar study can be conducted among antenatal mothers of first trimesters.
7. The similar study can be conducted among antenatal mothers with honey water as a study intervention.
8. The similar study can be conducted with acupuncture as study interventions.

SUMMARY

This chapter deals with summarization of the research study, bringing forth the major findings of the study, conclusion, nursing implications in nursing practice, education and research, discussion of the findings with the similar studies done worldwide as well as the recommendations to conduct further study. The findings of the study indicated that subjects had moderate constipation during the pretest. After diet counselling and exercise the constipation score was decrease in the post-test. Thus, the investigator found that diet counselling and exercise was effective

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ANNEXURE: A

ABBREVIATIONS

- **ANC OPD –** Antenatal out-patient department
- **WHO** – World Health Organization
- **RCTS** – Randomized Control Trials
- **ACOG** – American College of Obstetricians and Gynecologists
- **SPSS** - Statistical Package For the social science
- **SD** – Standard Deviation
- **MW test** – Mann-Whitney Test
- **BSES -** Breastfeeding Self-Efficacy questionnaire

ANNEXURE B

LETTER SEEKING ADMINSTRATIVE PERMISSION TO CONDUCT THE RESEARCH STUDY

To,

……

……

Subject: Request to grant permission to conduct the research

Respected Sir/Madam,

I would like to bring to your kind notice that as per the academic requirements, the students of S.Y. M.Sc. Nursing have to conduct study research and submit their dissertation to Maharashtra University of Health Sciences (MUHS) Nashik

A study titled-

"Effect of diet counselling and exercise on constipation among antenatal mothers."

I request you to grant permission to the above mentioned student to conduct this research at antenatal OPD of your esteemed institute. The student will furnish information in this regard, if required personally.

Thanking you.

Yours Sincerely,

Principal

ANNEXURE: **C**

LETTER REQUESTING FOR VALIDATION OF RESEARCH TOOL

To,

……

Subject: Content Validity of Research Tool

Respected Sir/ Madam,

……. is a bonafide M.Sc student of our institute**.** Mentioned below is the selected topic for her M.Sc dissertation as per the requirement of partial fulfillment of M.Sc Nursing.

Title of the dissertation: "Effect of diet counselling and exercise on constipation among antenatal mothers." She will be highly obliged if you could give your expert opinion and valuable suggestions to validate the research tool for its relevance, appropriateness and measurability.

I also request you to kindly sign the certificate stating that you have validated the tool. Your kind co-operation and your expert opinion in this regard will be very much appreciated.

Thank you in anticipation

Guide:…… Your's sincerely,

Enclosures:

- Research Tool
- Validation certificate
- Criteria checklist for content validity

ANNEXURE: D

CERTIFICATE FOR VALIDATION

This is to certify that the tool which is divided in two sections

SECTION I: Demographic Data

SECTION II: Checklist on Modified Rome III criteria for antenatal mothers with constipation

Constructed by……, M.Sc Nursing Student, to be used in her study. **"EFFECT OF DIET COUNSELLING AND EXERCISE ON CONSTIPATION AMING ANTENATAL MOHTERS"** has been validated by me and if found to be valid /not valid.

Overall Remarks:

Signature:

Name of expert:

Designation:

Name of the institution:

Official seal:

Date:

Place:

ANNEXURE: E

CERTIFICATE FOR LANGUAGE TRANSLATION

This is to certify that Ms……., a post graduate of M.Sc nursing conducted a study on the below mention topic in partial fulfillment of the requirement of degree master of science in nursing.

Topic: "Effect of diet counselling and exercise on constipation among antenatal mothers."

Her consent form for data collection is translated from English language to Marathi by me. Her Marathi consent form is valid. The meaning of the consent form prepared by the investigator has been retained.

Signature:

Name:

Designation:

ANNEXURE: F

EDITOR'S CERTIFICATE

This is to certify that, I……. have edited the dissertation/thesis of ……., a post graduate of M.Sc nursing on the below mention topic in partial fulfillment of the requirement of degree Master of Science in nursing.

Topic: "Effect of diet counselling and exercise on constipation among antenatal mothers."

Name:

Designation:

Institution:

Editor's signature

Date:

Place:

ANNEXURE: G

INFORMED CONSENT FROM (ENGLISH)

Dear client,
The purpose of this study is to assess **"Effect of diet counselling and exercise on constipation among antenatal mothers."** You are requested to participate in this study by answering simple questionnaire and referring data from the antenatal record, which will take few minutes to complete. Your kind co-operation is highly esteemed and your honest response is valuable. I assure that the information given by you will be kept strictly confidential and used only for the study purpose. If you are willing to participate in this study, kindly sign the consent form.

If you want to discontinue from my research study you are always welcome.

I thank you for agreeing to participate in this study. Kindly fill the Performa given below.

Yours Sincerely

Date:

Signature

Place:

ANNEXURE: H

CONSENT FROM (IN MARATHI)

संमती पत्र

प्रिय सहभागी,

आपणास साध्या प्रश्नावलीचे उत्तर देऊन या अभ्यासामध्ये भाग घेण्याची विनंती केली आहे, जी पूर्ण होण्यास तुम्हाला काही मिनिटे लागतील. आपल्या दयाळू सहकार्याचा अत्यंत आदर आहे आणि तुमचा प्रामाणिक प्रतिसाद मूल्यवान आहे. या अभ्यासाचा हेतू आहे "निवडक रूग्णालयाच्या सेटिंगमध्ये जन्मपूर्व मातांमध्ये आहार समुपदेशन आणि बद्धकोष्ठतेवरील व्यायामाचा परिणाम" या विषयाचे मूल्यांकन करणे. मी तुम्हाला खात्री देतो की तुम्हाला दिलेली माहिती काटेकोरपणे गोपनीय ठेवली जाईल आणि ती केवळ अभ्यासाच्या उद्देशाने वापरली जाईल. आपण इच्छुक असल्यास

या अभ्यासामध्ये भाग घेण्यासाठी सहमती दिल्याबद्दल मी त्याचे आभारी आहे. कृपया खाली दिलेली माहिती भरा:

आपला विनम्र,

स्वाक्षरी

तारीख:

ठिकाणः

ANNEXURE: I

DATA COLLECTION TOOL IN ENGLISH

"Effect of diet counselling and exercise on constipation among antenatal mothers."

Research tool to assess the effect of diet counselling and exercise on constipation among antenatal mothers.

Code no.- _____

Phone no.–

✸ Instructions :

- The researcher will fill information by interview method
- The information will keep confidential.

PART – I - Structure interviewed questionnaire to assess the demographical Variable.

- **SECTION – A -Demographical data**

1. Age in years –
2. Educational status
   - Educated
   - Uneducated
3. Type of family
   - Nuclear
   - Joint
4. Working status – working/Non-working
   If working,
   Type of work – 1. Sedentary
   2. Slight activity
   3. Moderate activity
   4. Heavy activity
5. Family income in Rs.
   - ≤5,000
   - 5,000-10,000
   - ≥10,000

- **SECTION – B – Pregnancy, Diet and Exercise related questionnaires.**

❖ **Pregnancy related questionnaires**

1. Duration of pregnancy in months –_____
2. Parity
   - Primi
   - Multi
3. Weight in Kg – _____
4. Did you had any history of illness before the pregnancy? – yes/No
   If Yes, Specify –
5. After conception did you face any health related problem? – Yes/No
   If Yes, then Specify,
6. Are you on any medication? – Yes/No
   If Yes, Specify
7. Do you have complaints of Nausea and vomiting? – Yes/No
   If yes, then since when

❖ **Diet related Questionnaires**

1. What type of diet you are taking?
   - Vegetarian
   - Non-vegetarian
   - Mixed
2. Do you avoid any food? – Yes/No
   If Yes, Specify –
3. Do you have food allergy? – Yes/No
   If yes, specify –
4. How many glass of water you are taking? _____
5. How many meals you eat in each day? _____
6. How often do you drink Tea?
   - Never
   - 1 cup/day
   - 2-3 cups/day
   - >4 cups/day
7. How often do you eat fruits?
   - Never
   - Once a day
   - Twice a day
   - Thrice a day
8. How often do you eat green leafy vegetables?
   - Once a day
   - Twice a day
   - Thrice a day
9. How many times a week do you eat meat, fish, chicken?
   - Once a week
   - Twice a week
   - Thrice a week
10. How many times a week do you eat dessert and sweet?
    - Once a week
    - Twice a week
    - Thrice a week

❖ **Elimination related Questionnaires**

1. No. of Bowel movement
   - Before pregnancy -
   - During pregnancy -
2. Did you have complaints of constipation before the pregnancy? Yes/No
   If yes, what was the treatment _____
3. Do you have complaint of pile / hemorrhoids during pregnancy? Yes/No
   If Yes, since when _____

Part – II – modified Rome III criteria to assess constipation among antenatal mothers

The researcher will use modified six point Rome III criteria checklist to assess the constipation among antenatal mothers. Constipation will assess by the following criteria's.

The research tool is based on the standardized Rome III criteria which was developed by the Rome Foundation in 2006. It is a standardized tool to help in diagnosis and treatment of functional gastrointestinal disorders.

Items	Yes	No
1. **Straining** For >1/4(25%) of defecations		
2. **Lumpy or hard stool** Form 1of 2 on the Bristol Stool Form Scale; for>1/4 (25%) of the defecations		
3. **Sensation of incomplete evacuation** For >1/4(25%) defecations		
4. **Sensation of anorectal obstruction or blockage** For >1/4 (25%) defecations		
5. **Manual maneuvers to facilitate defecation** E.g. digital evacuation, pelvic floor support; for >1/4 (25%) of defecations		
6. **<3 spontaneous bowel movements per week**		

Evaluation:

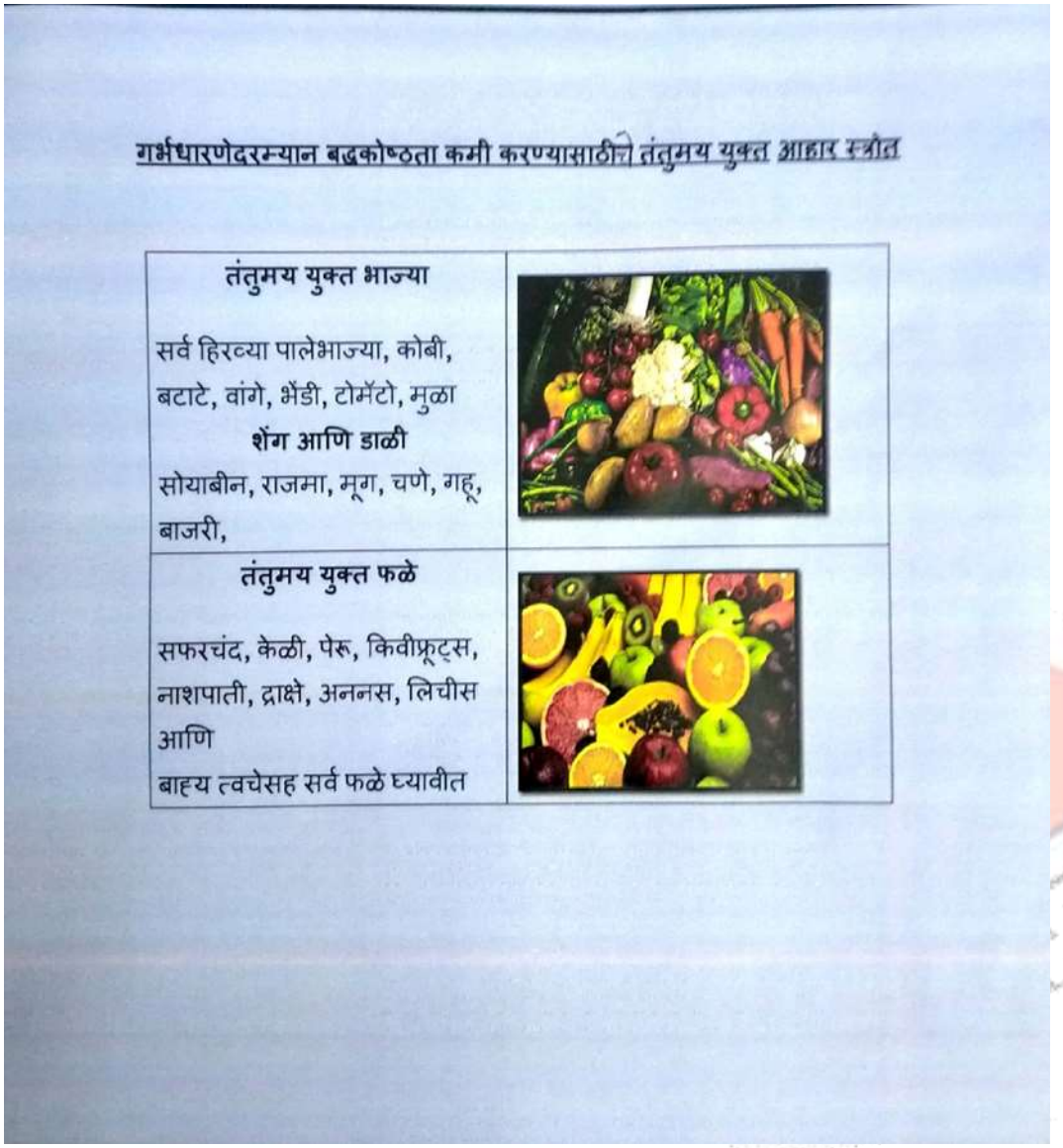
Must have >2of symptoms for > 3 months

Scoring: 0 – No constipation
1 – 2 – Mild
3 – 4 – Moderate
5 – 6 severe

- **Constipation: present –**
  Absent -
- **Participants scoring: pre-test score on day 1 of observation :** ☐
  Post- test score on day 15 of observation: ☐

ANNEXURE: J

PAMPLETS FOR DIET COUNSELLING



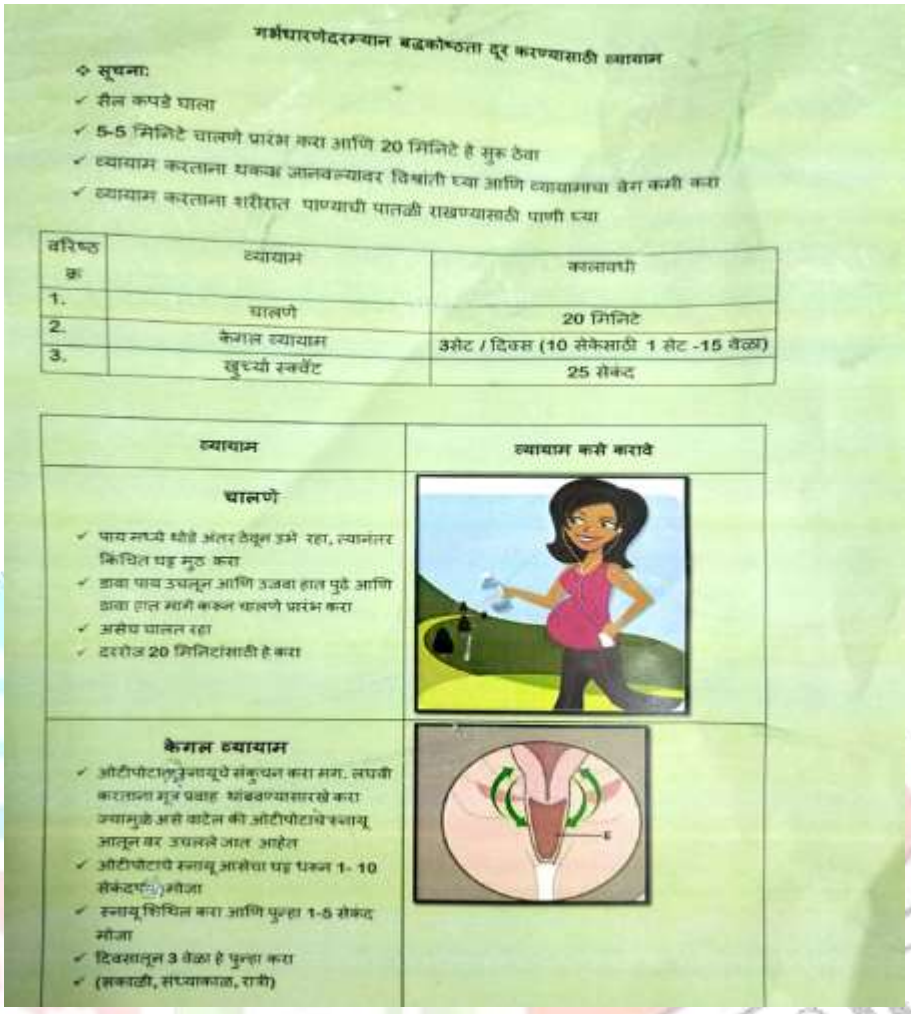
गर्भधारणेदरम्यान बद्धकोष्ठता कमी करण्यासाठीचे तंतुमय युक्त आहार स्त्रोत

तंतुमय युक्त भाज्या सर्व हिरव्या पालेभाज्या, कोबी, बटाटे, वांगे, भेंडी, टोमॅटो, मुळा **शेंग आणि डाळी** सोयाबीन, राजमा, मूग, चणे, गहू, बाजरी,	
तंतुमय युक्त फळे सफरचंद, केळी, पेरू, किवीफ्रूट्स, नाशपाती, द्राक्षे, अननस, लिचीस आणि बाह्य त्वचेसह सर्व फळे घ्यावीत	

गरोदरपणात आईने दररोज 2 ते 2.5 लिटर पाणी प्यावे. गर्भवती आईने चहा, कॉफी घेणे टाळले पाहिजे.	

ANNEXURE: K

PAMPLETS FOR EXERCISE



गर्भधारणेदरम्यान बद्धकोष्ठता दूर करण्यासाठी व्यायाम

❖ सूचना:

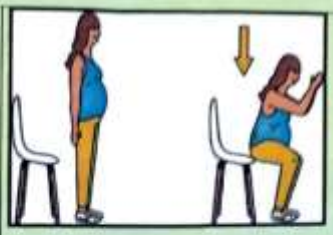
- ✓ सैल कपडे घाला
- ✓ 5-5 मिनिटे चालणे प्रारंभ करा आणि 20 मिनिटे हे सुरू ठेवा
- ✓ व्यायाम करताना थकवा जाणवल्यावर विश्रांती घ्या आणि व्यायामाचा वेग कमी करा
- ✓ व्यायाम करताना शरीरात पाण्याची पातळी राखण्यासाठी पाणी घ्या

वरिष्ठ क्र	व्यायाम	कालावधी
1.	चालणे	20 मिनिटे
2.	केगल व्यायाम	3सेट / दिवस (10 सेकेसाठी 1 सेट -15 वेळा)
3.	खुर्ची स्क्वॅट	25 सेकंद

व्यायाम	व्यायाम कसे करावे
चालणे ✓ पाय खांद्ये रुंदी अंतर ठेवून उभे रहा, त्यानंतर किंचित पुढे मुठ करा ✓ डावा पाय उचलून आणि उजवा हात पुढे आणि डावा हात मागे करून चालणे प्रारंभ करा ✓ असेच चालत रहा ✓ दररोज 20 मिनिटांसाठी हे करा	
केगल व्यायाम ✓ ओटीपोटाचे स्नायू संकुचन करा मग. लघवी करताना मूत्र प्रवाह थांबवण्यासारखे करा ज्यामुळे असे वाटेल की ओटीपोटाचे स्नायू आतून वर उचलले जात आहेत ✓ ओटीपोटाचे स्नायू आसपास पडू धरून 1- 10 सेकंदपर्यंत मोजा ✓ स्नायू शिथिल करा आणि पुन्हा 1-5 सेकंद मोजा ✓ दिवसातून 3 वेळा हे पुन्हा करा ✓ (सकाळी, संध्याकाळ, रात्री)	

खुर्च्या स्क्वॅट

- ✓ खुर्चीला भिंतीजवळ ठेवा जेणेकरून खुर्ची हलू शकणार नाही, मग खुर्चीपासून 1 फूट अंतरावर उभे राहा
- ✓ 1 ते 2 सेकंदासाठी खुर्चीवर थोडासे आराम करुन खुर्चीवर बसा
- ✓ मग परत उभे राहा
- ✓ 10-15 पुनरावृत्तीचे 3 संच करा



MASTERSHEE

MASTERSHEET OF EXPERIMENTAL GROUP		
Sample	Part II: Modified Rome criteria	
	pretest score	Post test score
1	3	1
2	4	1
3	3	2
4	3	1
5	4	0
6	4	1
7	3	1
8	3	1
9	3	0
10	3	2
11	3	0
12	4	1
13	3	0
14	3	0
15	3	2
16	3	0
17	2	1
18	3	1
19	3	0
20	3	0
21	3	0
22	2	0
23	3	0
24	2	0
25	2	0
26	3	2
27	2	0
28	3	2
29	2	0
30	2	0
31	4	1
32	2	0

Mastersheet of control group

Sample	Modified Rome III criteria	
	Pretest score	Post test score
1	3	2
2	3	2
3	3	3
4	4	2
5	3	1
6	3	1
7	4	3
8	3	2
9	4	2
10	3	1
11	2	0
12	2	0
13	3	2
14	3	2
15	3	2
16	4	2
17	3	2
18	4	2
19	4	3
20	3	3
21	4	3
22	4	3
23	2	2
24	2	0
25	2	0
26	2	0
27	3	0
28	3	0
29	4	2
30	3	2
31	2	2
32	3	2

ANNEXURE: M

ABSTRACT

INTRODUCTION

Pregnancy is very crucial event in every woman's life. Its brings anatomical, physiological and biochemical changes in women body. These all changes bring many common symptoms in pregnant mothers like, nausea and vomiting, heartburn, varicose vein, constipation. Constipation is the second most common in pregnant mothers. Constipation is occurring due to hormonal fluctuations like progesterone hormone increased during pregnancy that leads to relaxation of intestinal muscles. Other causes of constipation like enlargement of uterus, lack of fiber rich diet, lack of fluids, lack of exercise and also due to iron and calcium supplementations. Constipation leads to symptoms like, infrequent bowel movements, hard stool, rectal fullness. Along with this constipation leads to complications like hemorrhoid and rectal bleeding. Constipation is occurs in approximately 2.6% to 24.8% in Asia. Prevalence rate of constipation in pregnant women was 40% and evidence also shown that prevalence rate of constipation is two-three folds higher among pregnant women.

PROBLEM STATEMENT

Effect of diet counselling and exercise on constipation among antenatal mothers.

OBJECTIVES OF THE STUDY

- ✓ To assess the prevalence rate of constipation among antenatal mothers
- ✓ To assess the effect of the diet counselling and exercise on constipation among antenatal mothers.

METHODOLOGY

This is a quasi-experimental research study was conducted on 64 antenatal mothers consecutive purposively selected, who were came for antenatal checkup in the selected hospital in the selected city. Antenatal mothers in their second trimester onwards , those were will to participate and those who can read and write Marathi were included in the study and those antenatal mothers with high risk complication like preeclamsia, eclampsia or those were on treatment of constipation were excluded from study. Researcher divided the antenatal mothers in experimental and control group. Modified Rome III criteria was used as research tool to check the constipation score among antenatal mothers. Reliability score of Modified Rome III criteria was calculated with the help of split half method and found to be 0.871. Data analysis done with the help of descriptive and inferential statistics. Researcher used Mann-whitney and Wilcoxone test to fulfill the objectives.

RESULT

64 antenatal mothers were enrolled between the age of 20-25 years among them mean duration of pregnancy in experimental group was 6.88% months and in control group was 6.78%. Most of the antenatal mothers i.e. 78.1% had moderate constipation, while 21.9% cases had mild constipation and none of cases had constipation or sever constipation during pretest of experimental group. In post-test 46.9% of cases mild constipation, 53.1% cases had no constipation and none had moderate or severe constipation.

Whereas 78.1% antenatal mothers in control group had moderate constipation 21.9% of cases had mild constipation and none of case had constipation or severe constipation in pretest while in post-test 18.7% of cases had moderate constipation, 59.4% of cases had mild constipation, 21.9% of cases had no constipation and none of case had sever constipations. Mean pretest constipation score was 2.91 in experimental group while 0.63 was mean posttest constipation score. Posttest constipation score was significantly decreased i.e. 78.35% by applying Wilcoxon test $Z=5.01>1.96$, reject the null hypothesis as $P<0.0001$ Mean pretest constipation score was 3.06 in experimental group while 1.66 was mean posttest constipation score. Posttest constipation score was significantly

decreased i.e. 45.75% by applying Wilcoxon test Z= 4.41>1.96, reject the null hypothesis as P<0.0001

CONCLUSION

The present study shown that diet counselling and exercise was effective on constipation among antenatal mothers. The similar study can be conducted with acupuncture and with honey water as study interventions to treat constipation during antenatal period. The same study can be done throughout pregnancy and postnatal period also this study can be conducted in community setting and among antenatal mothers of first trimesters

KEY WORDS: Diet counselling, Exercise, Antenatal mothers, Modified Rome III criteria.