

A study to determine the prevalence of anaemia among antenatal women with a view to develop and evaluate the effectiveness of information booklet in terms of knowledge regarding management of anaemia for antenatal women attending antenatal Clinic in a selected hospitals of Chhattisgarh, India

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Abstract: Anaemia is the most common nutritional deficiency disorder in the world which contributes as a leading cause of complications of pregnancy and its outcome. The aim of study was to determine the prevalence of anaemia among antenatal women and evaluate the effectiveness of information booklet in terms of knowledge regarding management of anaemia for antenatal women in a selected hospitals of Chhattisgarh.

The study was carried out in two phases. Survey approach with descriptive survey design was adopted for the Phase- I study, to determine the prevalence of anaemia among all antenatal women registered in hospital. In phase II based on the findings of the phase I the information booklet was developed on management of anemia for antenatal women. The sample of Phase I study consisted of 200 antenatal women attending antenatal clinic selected by purposive sampling and Phase II consisted of 60 antenatal mothers with anemia selected by purposive sampling.

The tool used was structured interview schedule. The data obtained were analyzed using both descriptive and inferential statistics.

The major findings of the study were, the prevalence of anaemia among antenatal mothers were 61.5% . The mean post test knowledge scores were higher than the mean pre test knowledge scores of the antenatal mothers with anaemia. There was significant association between post test knowledge scores of antenatal mothers and education, occupation and family monthly income of antenatal mothers.

Findings of the present study had several implications for Obstetrical Nursing, Community Health Nursing, Nursing Education, Nursing Research, Nursing Practice and Nursing Administration. A follow up study can be conducted to evaluate effectiveness of the information booklet in retention of knowledge by antenatal mothers about management of anaemia.

Keywords-Anemia during pregnancy; antenatal mothers; Information booklet; Nutritional pattern; Severity of anemia

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I. Introduction

Even in this age of “India Shining” it is tragic that a preventable disease like anaemia is directly or indirectly causing morbidity and mortality during adolescence, pregnancy and childbirth process. Nurses are in a unique position who can play a leading role to combat anaemia during these phases of life in women by raising awareness about the management of anaemia, the simple yet a serious health problem in young girls and woman. Teenage pregnancy is a serious issue that seriously impacts the future of a young woman. Pregnant teens face a high risk for suffering from serious complication like anaemia. School nurses are in key positions to provide continuous support and surveillance of adolescent health through graduation. The school nurse implements sex education programs for graduates in reducing teen pregnancy rate. The community health nurse also encourages parents to speak with their teens regarding sex and pregnancy prevention. The school nurse plays a pivotal role regarding health issues of teen moms such as regular follow up of prenatal check-up, adequate intake of balanced diet, personal hygiene, dietary modification which helps in reducing as well as treating anaemia in early stage.

Anaemia is a condition in which there is decline in the circulating red blood cell mass, which reduces the capacity to carry oxygen to the vital organs of the mother and fetus. During pregnancy and puerperium, anaemia is defined as haemoglobin concentration of less than 10.5 to 11g/dl. According to the standard laid down by WHO, anaemia in pregnancy is present when the haemoglobin concentration in the peripheral blood is 11g/dl or less. During pregnancy plasma volume expands, maximum around 32 weeks, resulting in hemo

dilution. For this reason, haemoglobin level below 10g/dl at any time during pregnancy is considered anaemia. Haemoglobin level at or below 9g/dl requires detailed investigation and appropriate treatment. Anaemia is responsible for 20% of maternal deaths in the developing countries. This extremely traumatic state can be corrected by simple measures of iron supplementations & dietary modification **(Dutta. D.C, 2010)**

Gulam Nabi Azad, Health Minister of India, 2013 has recently revealed that anaemia is a significant public health challenge in India. Prevention and control of anaemia is one of the key strategies of the Health, Nutrition and Population sector Programmes for reducing maternal mortality, and improving maternal health status. Implementation of national Iron plus initiative in the right earnest would move us closer to reach the Millennium Development Goals with regard to bringing down maternal mortality.

WHO (2008) has estimated the worldwide prevalence of anaemia by regions and population groups. Women are most vulnerable to anaemia. The proportion of women and children is highest in the Africa region where 57% of pregnant women (17 million), 48% of non-pregnant women (70 million), are anaemic. In Southeast Asia, 48% of pregnant women (18 million) suffer from anaemia.

According to Federation of Obstetric and Gynaecological Societies of India (FOGSI) FOCUS (2009) reported that almost 60% pregnant women have haemoglobin of less than 10 gm/dl. Anaemia is mostly a simple disease, easy to recognise, diagnose and treat, yet our country suffers. Anaemia is the root cause of several complications which may occur and cause a high maternal mortality. The problem of treating anaemia, again like most problems with Indian women is social like food taboos, food habits, cultural values. Women of India need to be educated regarding diet, change in cooking and eating habits and empowered on nutritional diet, intake of iron supplement which will be enough to create self awareness so that problems like anaemia do not come in their lives.

Anaemia is the most common nutritional deficiency disorder in the world which contributes as a leading cause of complications of pregnancy and its outcome. The WHO has estimated that the prevalence of anaemia in developed and developing countries in pregnant women is 14 percent and 51 percent respectively. In India, anaemia was estimated at 65 to 75 percent in pregnant women **(WHO 2004)**.

The Registrar-General of India (2013) released the latest MMR figures for 2010-2012, suggest that the MMR had come down to 178 from 212, with an annual decline of 5.7 percent. Kerala has the lowest MMR at 66, Assam tops the list in absolute numbers with 328 deaths per 1,00,000 live births, though the number has declined by 5.6 per cent from the previous figure of 390. The eight Empowered Action Group (EAG) States, which traditionally had very bad health indicators, have shown remarkable achievements. Among these, Rajasthan has shown an annual decline of 16 per cent, with its figures 255. Bihar/Jharkhand stands at 219, while 292 women still die in Uttar Pradesh from pregnancy-related deaths for every 1,00,000 live births. This figure is 230 in Madhya Pradesh/Chhattisgarh as against 269 in the 2007-09 survey. Karnataka had done well by bringing down its MMR to 144 and in Andhra Pradesh it was 110 as against 134. Thus India inches closer to achieving millennium development goal — MMR 109 by year 2015.

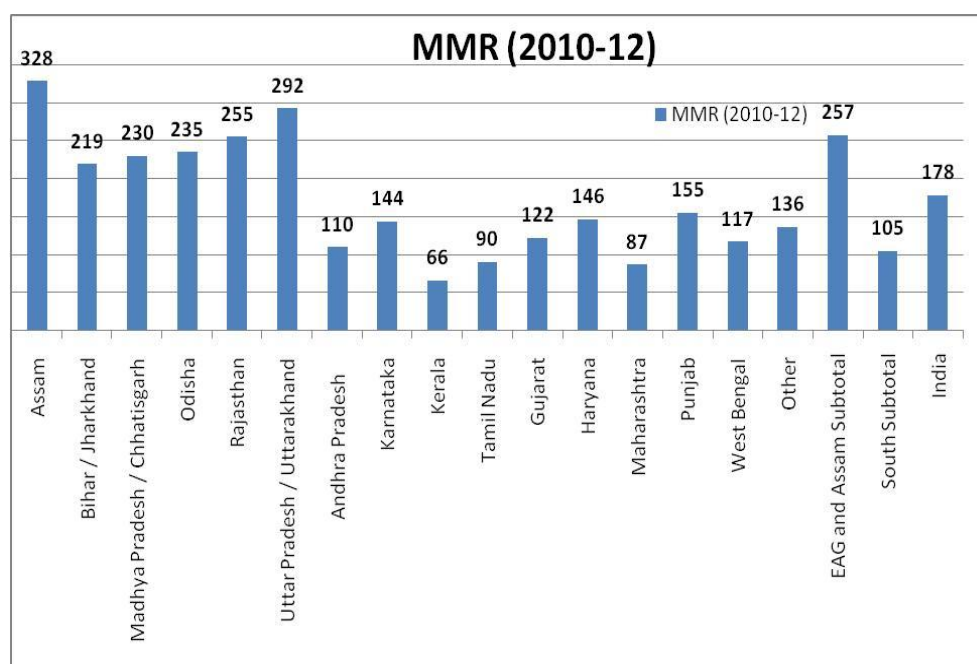


Fig. 1 : The State Wise Maternal Mortality Ratio
Source : The Registrar General Of India (2013)

According to Registrar-General of India 2013 (Figure 2) shows MMR of various states of India. Kerala has the lowest MMR at 66 and Assam tops the list in absolute numbers with MMR 328.

In 2002, Iron Deficiency Anaemia (IDA) was considered to be among the most important contributing factors to the global burden of disease (WHO, 2002). Iron deficiency is the most common single cause of anaemia worldwide, accounting for about half of all anaemia cases. It is more common in women than in men. Iron deficiency anaemia is the most common form of anaemia. Three stages of iron deficiency are (a) First stage characterized by decreased storage of iron without any other detectable abnormalities. (b) An intermediate stage of "latent iron deficiency", that is, iron stores are exhausted, but anaemia has not occurred yet. Its recognition depends upon measurement of serum ferritin levels. The percentage saturation of transferrin falls from a normal value of 30% to less than 15%. This stage is the most widely prevalent stage in India, and (c) The third stage is that of overt iron deficiency when there is a decrease in the concentration of circulating haemoglobin due to impaired haemoglobin synthesis (Park K. 2007). The midwife reduces Iron deficiency anaemia by helping to identify women at risk of iron deficiency anaemia by taking accurate history of medical, obstetrics and social history. She is able to provide explanation appropriate to particular woman taking into account her health and socio-cultural preferences.

Anaemia in pregnancy is a condition with effects that may be deleterious to the mother and the fetus. Adverse effects of anaemia during antenatal period are poor weight gain, PIH, placenta previa, eclampsia, abruption placenta and premature rupture of membranes. Maternal risk during intranatal period include preterm labour, dysfunctional labour, intranatal haemorrhage, shock, anaesthesia risk cardiac failure, etc. The postnatal period can be complicated with postnatal sepsis, sub involution and embolism. Anaemia effects the fetal and neonatal outcome adversely in the form of complications like prematurity, low birth weight, poor APGAR score, fetal distress, neonatal distress requiring prolonged resuscitation and neonatal anaemia due to poor reserve. (D. C. Dutta, 2006)

Prevention of anaemia in pregnancy is still a dream for much of India and particularly, for its rural areas. According to the Census of India 2011, about 70% of our population live in the villages. Poverty, ignorance, malnutrition, poor sanitation, hygiene, religious taboos which make the pregnant women prone to health hazards which are preventable and manageable. Community health nurse play an important role on health education through demonstration, film show, pamphlet, exhibition etc.

Though there is a knowledge explosion, scientific advancement, and technological development in medicine and health care, our people are still following the traditional lifestyle which is a major cause of anaemia due to lack of awareness. Benefits of health knowledge and technology have not yet reached the rural women at large.

Thus, in view of the importance to enhance the knowledge regarding dietary regulations, iron supplementation and personal hygiene to manage anaemia, the nurse plays a vital role in preventing the hazardous complication due to anaemia through health education and enhance the mother's knowledge and practice to prevent further maternal and fetal complications during pregnancy, labour and puerperium and maintenance of health in prolonging life by a healthy mother and a healthy baby. Nurses are also required to participate in the Planned Parenthood through Reproductive Child Health Programme which addresses the reproductive health of teens and women.

Need of the study

Ghulam Nabi Azad, Minister of Health (2013) announced that anaemia is a significant public health challenge in India. If the comprehensive sets of actions identified in National Guidelines for Control of Iron Deficiency Anaemia are fully implemented; children, adolescents and women in India will have improved health outcomes and be able to achieve their fullest potential. Implementation of national Iron plus initiative in the right earnest would move us closer to reach the Millennium Development Goals with regard to bringing down maternal and child mortality.

Prevention of anaemia is a major public health concern throughout the world. Anaemia in pregnancy is one of the leading causes responsible for maternal and perinatal morbidity and mortality. World Health Organization in 2009 reported that 35% to 75% of pregnant women in developing countries, and 18% of women from industrialized countries are anaemic. However, many of these women were already anaemic at the time of conception, with an estimated prevalence of anaemia of 43% in non pregnant women in developing countries and of 12% in women in wealthier regions. Even in highly developed country like Japan, the National Nutrition Survey revealed that anaemia prevalence among young Japanese women is increasing (Kusumi Eiji *et al* 2006).

About 20% of maternal deaths occur due to anaemia. According to WHO World Health Statistics 2007 data, the maternal mortality rate (MMR) in India is 540 (maternal deaths per 100,000 live births). In fact, in neighbouring countries like China & Sri Lanka the MMR is better than India i.e. 56 & 92 respectively.

It was estimated by National family health survey (NFHS)3 2005-2006 that the prevalence of anaemia found to be 58% in pregnant women and in Chhattisgarh 63 % of pregnant women were anaemic.

According to DLHS-RCH 2002-2004 reported that in India prevalence of anemia among antenatal women is 96.2% in which in Chhattisgarh, prevalence of anaemia among antenatal women of 15-44years were found 56 percent having moderate anaemia and 5 percent having severe anaemia. It has also shown that percentage of pregnant women with any anaemia in rural area were 98.3% and in urban 95.5%.

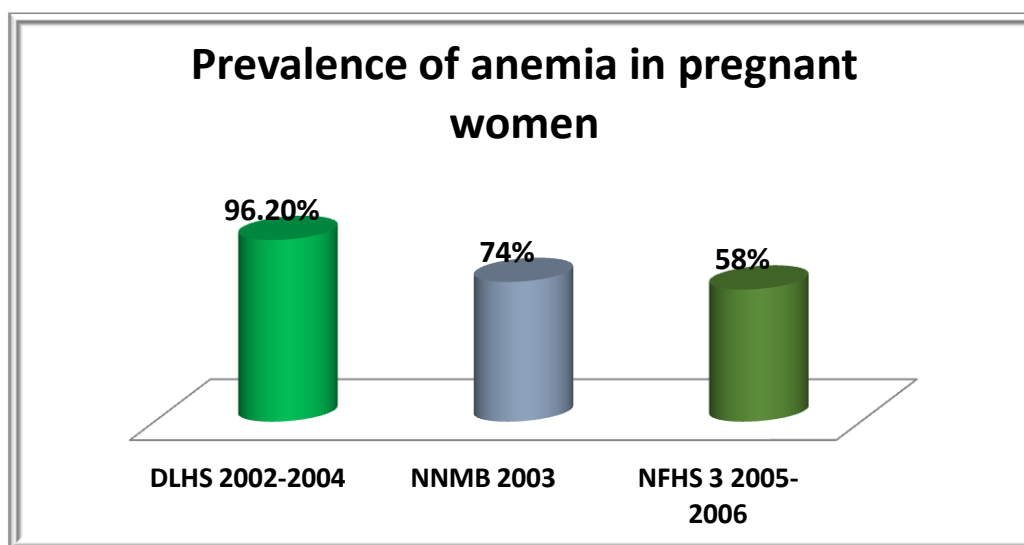


Fig. 2 : Prevalence of Anaemia in Pregnant Women from 3 Surveys in India

National Nutritional Anaemia Prophylaxis Programme (NNAPP) was initiated in 1970 during fourth five year plan with the aim to reduce the prevalence of anaemia to 25%. Subsequent evaluations have shown no change in the situation. Since 1992, the daily dosage of elemental iron for prophylaxis and therapy has been increased to 100 mg and 200 mg respectively under child survival and Safe Mother hood Programme.

A “12 by 12 initiative” is launched by Federation Of Obstetrics And Gynecology Society Of India (FOGSI) Delhi, in collaboration with Government of India, WHO, and UNICEF on 23rd April 2007 at All India Institute of Medical Sciences, New Delhi. A motive behind “12 by 12 initiative” is to reduce lower birth weight, infant mortality rate, maternal mortality rate by the year 2015. There is a need to combat to anaemia during adolescence so that women enter pregnancy and motherhood free of anaemia and that newborns and infants are assured of good health.

Investigator during her clinical experience has seen that most of the pregnant women who are anaemic develop complications like PIH, eclampsia, abruption placenta, preterm labour, instrumental deliveries, caesarean sections, intranatal haemorrhage shock, postnatal sepsis sub involution and embolism which in turn increases the maternal and neonatal morbidity and mortality rates. So I decided to provide Information booklet on management of anaemia to anaemic antenatal women because anaemia's seen in pregnancy is easily treatable if detected in time, thus no woman must enter in labour in an anaemic stage especially when prevention is easy and complications are hazardous. So to have a healthy mother and a healthy baby we should prevent and treat anaemia in pregnancy in the early period.

In this context, the present study was carried out to find out the prevalence of anaemia among pregnant women with associated background factors. Anaemia can be prevented and controlled in pregnant women by improvement in diet and prophylactic treatment by iron folic acid, improvement of diet and treatment for worm infestation and malaria.

STATEMENT OF THE PROBLEM

A study to determine the prevalence of anaemia among antenatal women with a view to develop and evaluate the effectiveness of information booklet in terms of knowledge regarding management of anaemia for antenatal women attending antenatal Clinic in a selected hospitals of Chhattisgarh, India.

II. Methodology

The present study was conducted in two phases:

Phase I - To determine the prevalence of anaemia among all the antenatal mothers registered in the hospital.

Phase II – to develop and evaluate the effectiveness of information booklet regarding management of anaemia among antenatal women in terms of their knowledge .

Research approach

The research approach adopted for Phase I study was **survey approach** to determine the prevalence of anaemia among all antenatal mothers registered in selected hospital of Chhattisgarh. To identify the specific learning need areas of the antenatal mothers a survey was done.

In Phase II study Evaluative experimental Research approach was considered appropriate to evaluate the effectiveness of information booklet on management of anaemia in terms of knowledge among antenatal mothers with anaemia in selected hospital of Chhattisgarh.

Research design

The present study was conducted in two phases :

Phase I: Survey –the research design opted for **Phase I** study was descriptive survey to determine the prevalence of anaemia among all registered antenatal women and to seek its association with selected factors in selected hospital of Chhattisgarh and to develop information booklet with the help of review of literature and also talking to the women about the dietary pattern of the antenatal women.

Phase II : The research design for this was pre experimental research design, **“one group pre test and post test”** design to measure the effectiveness of the information booklet regarding management of anaemia among antenatal mothers with anaemia attending selected antenatal clinic.

The design adopted for the study may be represented as :

| | | |
|------------------|-------------------|--------------------|
| Pre -Test(Day 1) | Treatment (Day 1) | Post- Test (Day 7) |
| OK1 | X | OK2 |

Fig. 3 : Symbolic Representation of Phase II Research Design

The interpretation of the symbols are as follows

O: Stands for test.

OK 1: Knowledge test to assess the knowledge of antenatal mothers with the help of interview schedule on management of anaemia before the administration of information booklet.

X: Intervention i.e. administration of Information Booklet on management of anaemia to the antenatal mothers who were anaemic.

OK2: Knowledge test to assess the knowledge of the antenatal mothers with the help of interview schedule on management of anaemia after the administration of information booklet.

| GROUP | ASSESSMENT | ANALYSIS | SYNTHESIS |
|--|--|---|--|
| All registered Antenatal women in selected hospital of Chhattisgarh. | Development and administration of structure interview schedule to assess the prevalence of anemia among antenatal women. | Development of criteria list for content outline of informational booklet regarding management of anaemia during pregnancy. | <ul style="list-style-type: none"> ➤ Development of information booklet on the basis of existing needs, contribution from experts and review of literature. ➤ Validation and final draft of information booklet. |

Fig. 4: Schematic Representation of the Research Design of Phase I

| GROUP | DAY 1 | | DAY 7 |
|--------------------------------|---|--|---|
| | PRE TEST | INFORMATION BOOKLET | POST TEST |
| Antenatal mothers with anaemia | Structured knowledge interview schedule | Administration of information booklet on management of anaemia during pregnancy. | Structured knowledge interview schedule |

Fig. 5: Schematic Representation of the Research Design (Phase 2)

Variables under study

In the present study following are the independent and the dependent variables.

Phase-II Variables:

Independent variable: The independent variable in the present study was information booklet on management of anaemia for antenatal mothers under study.

Dependent variable: The dependent variable is knowledge regarding management of anaemia among antenatal mothers as evident from knowledge scores.

Setting of the study

This present study was carried out in two hospitals of Chhattisgarh.

Phase-I (Survey) Maternity Nursing Home, Kunkuri, Chhattisgarh

Phase-II (Pre Experimental) Community Health Centre ,Kunkuri, Chhattisgarh.

Population

In the present study, the population was all registered antenatal mothers attending antenatal clinic of selected hospital of Chhattisgarh.

Sample and sampling technique

PHASE – I

Population : In the present study population was all registered antenatal mother from Maternity Nursing Home, Kunkuri, Chhattisgarh

Sample Size: 200 antenatal mothers registered in a selected hospital of Chhattisgarh.

Sampling Technique : Purposive sampling method is used to determine the prevalence of anaemia among all registered antenatal mothers of selected hospital of Chhattisgarh

PHASE - II

Sample : Antenatal mother with anaemia attending antenatal clinic of Community Health Centre, Kunkuri, Chhattisgarh.

Sample size : 60 Antenatal mothers who were anaemic.

Sampling technique: Purposive sampling method is used to evaluate the effectiveness of information booklet on management of anaemia for antenatal mothers in selected hospital of Chhattisgarh.

DATA COLLECTION TOOLS AND TECHNIQUES

Structured interview techniques was selected to collect data from antenatal mothers on their dietary pattern and prevalence of anaemia.

Based on the conceptual framework and objectives of the study the following tools were developed to generate data:

Tool 1: Structured Interview Schedule was prepared to obtain data regarding the prevalence of anaemia among all registered antenatal mothers in Phase 1. It mainly consists of personal data, dietary pattern, obstetrical history and recording haemoglobin level of antenatal mothers.

Tool 2: Structured interview schedule to assess the knowledge of antenatal mothers with anaemia regarding management of anaemia during pregnancy in Phase II study.

DEVELOPMENT OF THE TOOL

Development of the Structured Interview Schedule

The structured interview schedule was developed on the basis of

- Extensive review of research and non-research literature.
- Consultation with experts in the field and related fields.
- Discussion with the peer group.
- Personal experiences in the field of Obstetrics and community health.

DESCRIPTION OF THE TOOL

The Structured Interview Schedule consisted of four sections

Section I – Consisted of (1-7 items) on personal data of subjects, such as age, religion, type of family, education, occupation, family income, hygiene of all registered antenatal mothers.

Section II – Consisted of (8- 12 items) on diet related information of all registered antenatal mothers.

Section III – Consisted of (13-20 items) on Obstetrical history such as, registration, gestational period, parity, birth spacing, iron intake of all registered antenatal mothers.

Section IV- Haemoglobin record according to WHO Classification of all registered antenatal mothers.

Thus a total of 21 items are included in the structured interview schedule.

DEVELOPMENT OF THE STRUCTURED KNOWLEDGE INTERVIEW SCHEDULE

The tools for the study were developed. The preparation of the tools undertaken involved the following steps:

- ✓ Planning for the required tools.
- ✓ A review of research and non research literature.
- ✓ Opinion of the experts sought regarding the clarity and appropriateness of the items.
- ✓ Experience of the researcher helped to identify the items to be added.
- ✓ Requirement of the tools according to the objectives and conceptual framework was sought.
- ✓ Selection of the items as required for the study.
- ✓ Establishing reliability and validity of the tools.

The structured knowledge interview schedule was developed by an extensive review of research and non research literature and taking expert's opinion.

Steps followed in Development of the Tools

- First a blue print was prepared specifying the content and domains.
- About 30 objective type questions were prepared. The questions were of multiple choice items.
- The items were selected from 8 main areas namely : iron deficiency anaemia, haemoglobin, causes of anaemia, sign and symptoms of anaemia, effects of anaemia during pregnancy on baby, rich sources of Iron and Vitamin C, balanced diet & management of anaemia.

The Structured Knowledge Interview Schedule developed for data collection comprised of two parts:-

Part I – Personal Data

This section of structured knowledge interview schedule consisted of items related to sample characteristics such as age, type of family, education, occupation, family monthly income, 24 Hours diet recall method, gestation period, parity, birth spacing between previous pregnancy and severity of anaemia.

Part II - Knowledge Regarding Management Of Anaemia

This consisted of 30 multiple choice questions structured to determine the knowledge of the antenatal mothers with anaemia regarding management of anaemia during pregnancy.

SCORING METHOD

Each item had a single correct answer. Every correct answer was accorded a score of one point and every wrong answer was assigned a zero score. Thus the total score on knowledge questionnaire was 30 which is given in appendix J.

CONTENT VALIDITY OF THE TOOLS

The content validity of the tools were established by submitting the tools to nine experts. Experts were from the field of Obstetrics and Gynaecology, Obstetrics and Gynaecology Nursing , Nursing education and nutritionist . The experts were chosen on the basis of their clinical experience, expertise, qualification and interest in the problem area. They were requested to judge the items on basis of their relevance, clarity, feasibility and organization of items on basis of their relevance, clarity, feasibility and organization of items included in the study. Necessary modification were incorporated based on their suggestions. The modified interview schedules were translated by language experts into Hindi and the then back into English. There was 100% language agreement in all items.

TRY OUT OF THE TOOL

Pre testing of Structured Interview Schedule and later the knowledge questionnaire was done to ensure the clarity of items, their feasibility and practicability.

For the Phase I, after obtaining formal administrative permission, the Hindi version of the tool was administered to 20 antenatal mothers, similar to those of the population under study. Average time taken for the completion of the structured interview schedule for each antenatal mother was around 45-50 minutes.

In the Phase II, the Structured Knowledge Interview Schedule was administered to 15 antenatal mothers with anaemia after administrative approval and informed consent. Average time taken to complete the questionnaire was about 30-35 minutes. The items were found to be clear and well understood.

ITEM ANALYSIS

The knowledge items of the questionnaire were analyzed by calculating the item difficulty and discriminative value. The item difficulty and discriminative value were ranging from 20% to 60% and 0.2 to 0.5 respectively. 3 items were having item difficulty value was 0.1 and it was modified keeping in mind the importance of the question. The questionnaire consists of total 30 questions only.

RELIABILITY OF TOOLS :

Kudar Richardson-20 formulas was used for interview schedule on the knowledge and it was found to be 0.80.

ETHICAL CONSIDERATION

A formal permission was taken from the senior obstetrician to conduct Phase I and from Directorate of health service to conduct phase II study. Consent was taken from the antenatal mothers who are willing to participate in the study. In order to obtain their confidence and a free and frank response, the mothers were told about the nature and purpose of the study and their expected participation in the study.

PHASE I STUDY

After taking the formal permission from the senior Obstetrician, **Phase I study** to determine the prevalence of anaemia and to seek the associated factors of anaemia among all registered antenatal mothers. The study was conducted from 9th October 2013 to 21st October 2013. A total of 200 antenatal mothers who were coming for USG investigation in Maternity Nursing Home were taken, based on the criteria needed for the study. The sampling technique used was purposive sampling technique. Purpose of the study was explained to

the mothers and the confidentiality was ensured and thus, data was collected from the 200 antenatal mothers. Time taken to respond to the tool was 45-50 minutes. No problem was faced during data collection.

DEVELOPMENT OF INFORMATION BOOKLET

Development of Criteria Checklist

The list of criteria was prepared after reviewing the existing literature on information booklet. Previous experiences and opinions from experts in the field helped the investigator in developing the criteria items. The criteria provided the basis for development of content and the material.

The appropriateness of criteria rating scale was ensured by gathering opinion from 2 consultants (Obstetrics & Gynaecology), and 7 nursing experts. Criteria rating scale consisted of different areas like appropriateness of title, objectives and content, and a three response column for rating against each criteria i.e. fully met, mostly met and to some extent and designed along with remarks column.

PREPARATION OF INFORMATION BOOKLET

Information booklet was prepared on management of anaemia for antenatal mothers with anaemia based on review of research and non research literature, discussion with peer group and experts opinion. Certain aspects were considered while preparing the booklet like simplicity of language, illustration, handy, self-pacing and independent learning. The material was developed in simple English language-by-language experts in order to facilitate independent/self learning.

The steps involved in developing the booklet are:

- Development of rating scale and content outline for the information booklet.
- Preparation of the first draft.
- Content validation of the information booklet.
- Editing of information booklet.
- Pretesting
- Preparation of the final draft of information booklet.
- Dissemination of the information booklet.

CONTENT VALIDITY OF THE INFORMATION BOOKLET

Information booklet was given to nine experts, including 2 consultants (Obstetrics & Gynaecology), and 7 nursing experts, they were chosen on the basis of their clinical expertise and experience, qualification and interest in the problem area. The experts were requested to give their opinion and suggestions on the content, there was 100% agreement among 9 experts on the content of information booklet. However, certain suggestions and certain simple words were given and the same were incorporated in the final booklet.

PROCEDURE FOR DATA COLLECTION – PHASE II

The phase II study was done within the period of 16th December 2013 to 8th January 2014 at Community Health Centre, Kunkuri, Chhattisgarh after seeking the administrative approval.

After obtaining the permission from the concerned authority, a total of 60 samples were selected out from the antenatal clinic using purposive sampling based on the criteria needed for study.

Day 1 (Pre test) – After explaining the purpose of the study and taking the informed consent from the samples, the investigator conducted the structured interview to each subject to assess the existing knowledge of antenatal mothers with anaemia regarding management of anaemia during pregnancy.

Thereafter the information booklet was distributed to the samples.

A provision was made available for the samples to get the content clarified, if needed, by the investigator.

Day 7 (Post test) - Finally the post test was conducted to all the samples.

The data obtained was tabulated and analyzed in terms of the objectives of the study using descriptive and inferential statistics.

The problem faced by the researcher was sample mortality of 3 samples.

PLAN FOR THE DATA ANALYSIS

It was planned to analyse the data using both descriptive and inferential statistics as follows:

Plan for the Data Analysis – Phase I

- ♣ Frequency and Percentage Distribution of all Registered Antenatal Mothers to describe the Sample Characteristics.
- ♣ Frequency and Percentage Distribution of all Registered Antenatal Mothers to describe Dietary History.
- ♣ Frequency and Percentage Distribution of all Registered Antenatal Women to describe Obstetrical History.
- ♣ Frequency and Percentage Distribution of all Registered Antenatal Women to describe Prevalence of Anaemia among Antenatal Mothers.
- ♣ Frequency And Distribution of Anaemic Antenatal Mother according to Severity of Anaemia.
- ♣ Computing Chi-Square Value to find the Association between Severity of Anaemia and Selected factors.

Plan for the Data Analysis – Phase II

- ♣ Description of Sample Characteristics in Frequency and Percentage.
- ♣ Mean, Median and Standard Deviation Value of Pre-Test and Post-Test Knowledge Score of Antenatal Mothers with Anaemia.
- ♣ “t” Value to Determine the Significance of Difference Between Mean Pre- Test and Post-Test Knowledge Scores at 0.05 Level of Significance.
- ♣ Computing X² (Chi – Square) Values to find the Association between Post- Test Knowledge Scores and Selected factors.

III. Analysis And Interpretation Of Data

Section 1

Description of the sample characteristics (phase-I)

The data presented in the Table 1 shows distribution of antenatal mother according to their age, religion, type of family, education, occupation, monthly income of family.

- Most of the antenatal women 94 (47%) were in the age group of 26 – 30 yrs, 87 (43.5%) were in the age group of 19- 25 yrs and 19 (9.5%) were in the age group of above 31 yrs.
- According to religion 86 (43%) were Hindus, 78 (39%) were Christian and 36 (18%) were Muslim.
- Majority 120 (60%) of antenatal women belonged to nuclear family and 80 (40%) belonged to joint family.
- As per education, 91 of antenatal women (45.5%) had education till 10+2, 74 (37%) upto graduation and above , 18 (9%) upto middle education, 8 (4%) upto primary education and 9 (4.5%) had no formal education.
- Most of antenatal women 112 (56%) were homemaker, 34 (17%) had any other job and 29 (14.5%) had private job and only 25 (12.5%) were in government job.
- As regard to the monthly income of the family most of antenatal women’s 94 (47%) family monthly income was more than Rs 10000, 50 (25%) and 44 (22%) were between Rs 5001-Rs 10000 and Rs 2001-Rs5000, 12 (6%) having monthly income less than Rs 2000.

TABLE 1
Frequency and Percentage Distribution of Antenatal Women by Age, Religion, Type of Family, Education, Occupation, Monthly Income of Family.

N = 200

| S. no. | Sample characteristics | Frequency | % |
|-----------|------------------------|-----------|------|
| 1 | Age in years | | |
| a | 19-25 yrs | 87 | 43.5 |
| b | 26-30 yrs | 94 | 47 |
| c | 31 yrs and above | 19 | 9.5 |
| 2. | Religion | | |
| a | Hindu | 86 | 43 |
| b | Muslim | 36 | 18 |
| c | Christian | 78 | 39 |
| d | Others | 0 | 0 |
| 3 | Type of family | | |
| a | Nuclear family | 120 | 60 |
| b | Joint family | 80 | 40 |
| c | Extended family | 0 | 0 |

| | | | |
|----------|----------------------|-----|------|
| 4 | Education | | |
| a | Graduation & above | 74 | 37 |
| b | 10 + 2 | 91 | 45.5 |
| c | Middle school | 18 | 9 |
| d | Primary school | 8 | 4 |
| e | No formal education | 9 | 4.5 |
| 5 | Occupation | | |
| a | Government job | 25 | 12.5 |
| b | Private job | 29 | 14.5 |
| c | Home maker | 112 | 56 |
| d | Any other | 34 | 17 |
| 6 | Family Income | | |
| a | Less than Rs2000 | 12 | 6 |
| b | Rs2001 – Rs5000 | 44 | 22 |
| c | Rs5001 – Rs10000 | 50 | 25 |
| d | More than Rs10000 | 94 | 47 |

SAMPLE CHARACTERISTICS

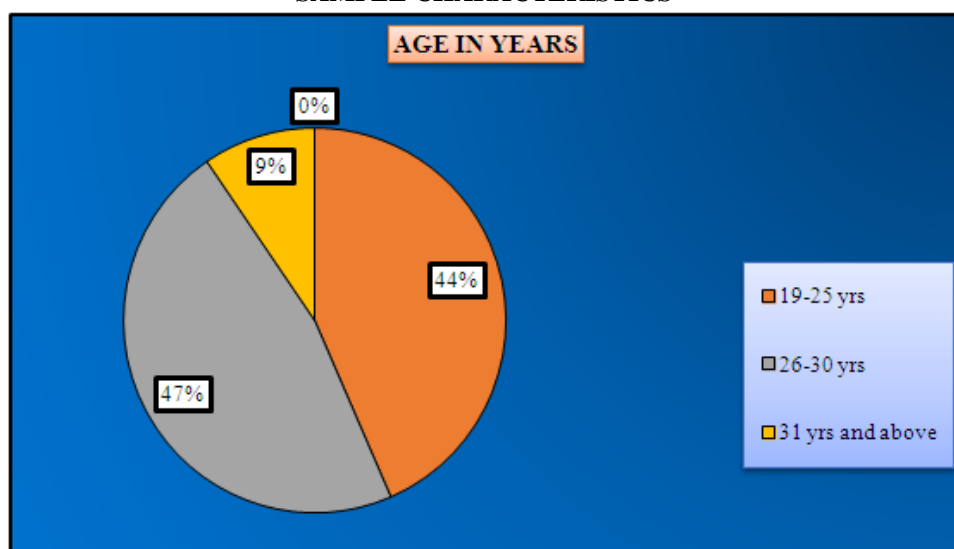


Fig. 6 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers by Age

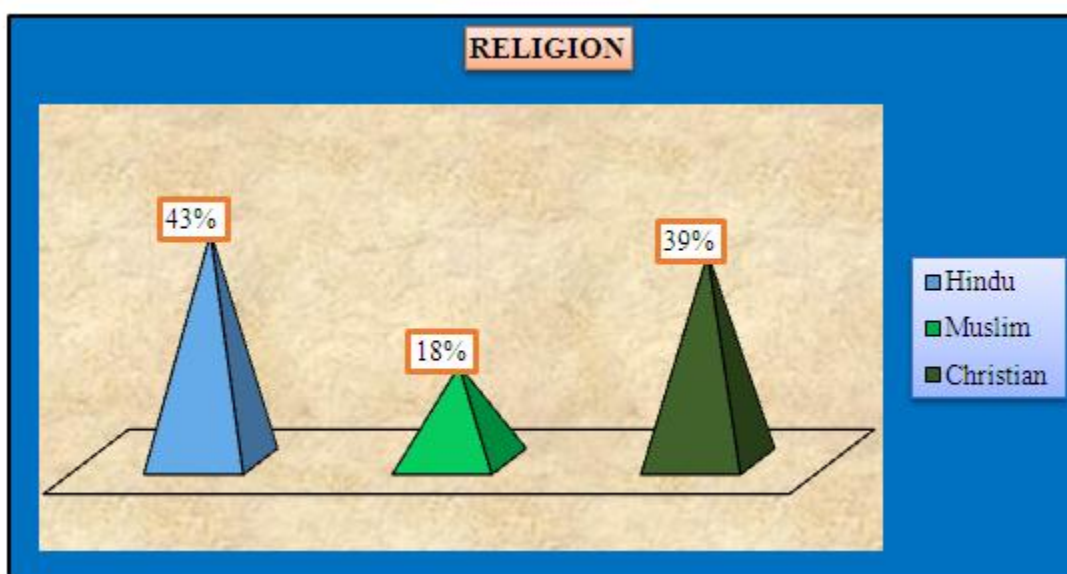


Fig. 7 : Pyramidal Graph Showing Percentage Distribution of Antenatal Mothers according to Religion

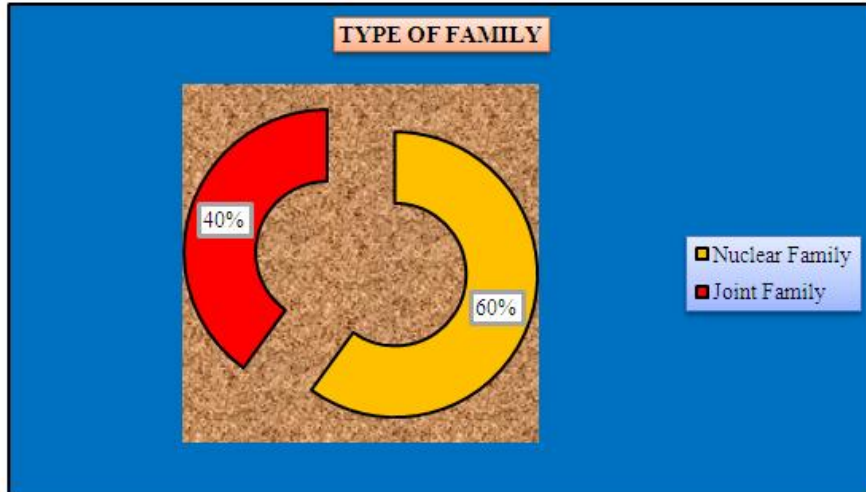


Fig. 8: Dough Nut Chart Showing Percentage Distribution of Antenatal Mothers according to Type of Family

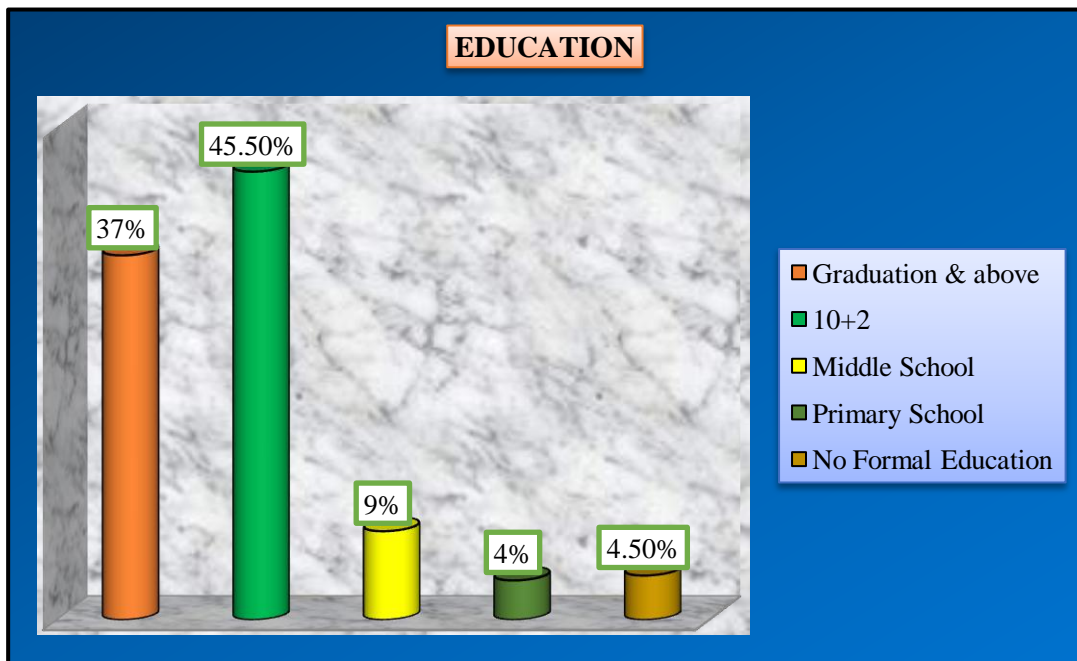


Fig. 9: Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers according to Education

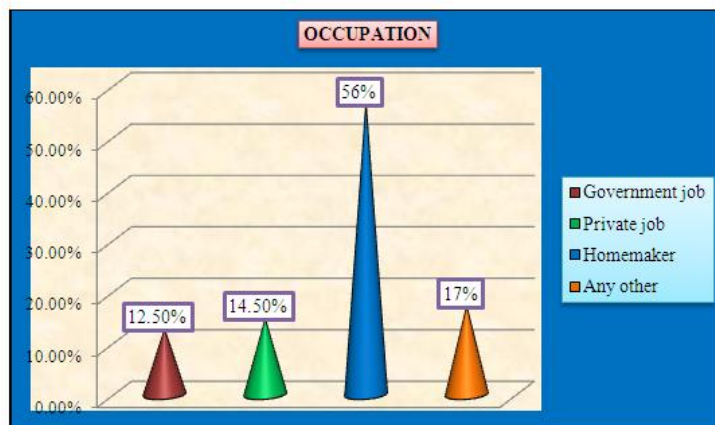


Fig. 10 : Pyramidal Graph Showing Percentage Distribution of Antenatal Mothers According to Occupation

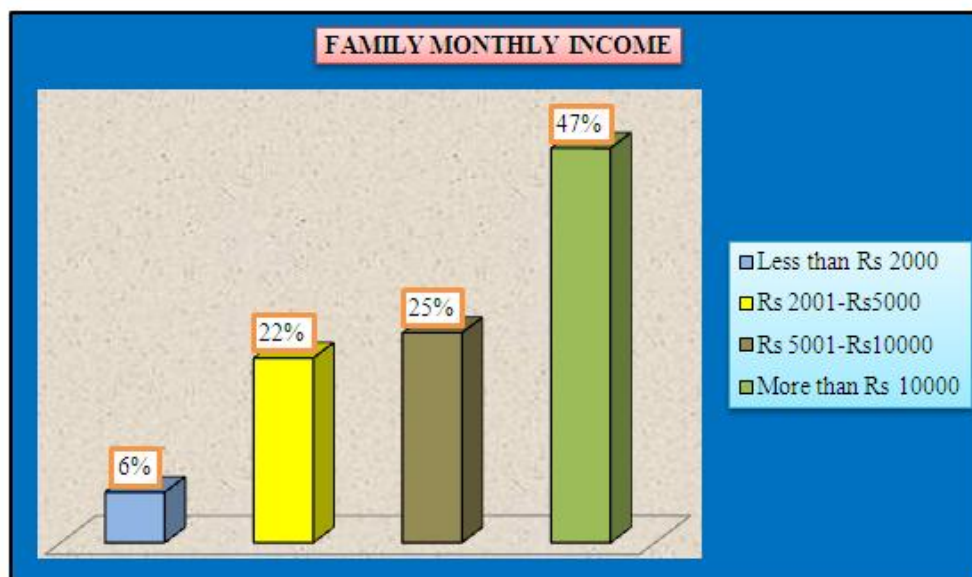


Fig. 11: Bar Diagram Showing Percentage Distribution of Antenatal Mothers According to Family Monthly Income

**Table -2
Frequency and Percentage Distribution of Antenatal Women According to Dietary History**

| N=200 | | | |
|-----------|--|-----------|------------|
| S. No. | Dietary history | Frequency | Percentage |
| 7 | Diet | | |
| a | Vegetarian | 46 | 23 |
| b | Non vegetarian | 151 | 75.5 |
| c | Eggeterian | 3 | 1.5 |
| 8 | Fasting during pregnancy | | |
| a | Yes | 18 | 9 |
| b | No | 182 | 91 |
| 9 | Avoiding particular food during pregnancy | | |
| a | Yes | 7 | 3.5 |
| b | No | 193 | 96.5 |
| 10 | Consumption of additional food | | |
| a | Yes | 22 | 11 |
| b | No | 178 | 89 |

Table – 2 shows distribution of antenatal mothers according to their dietary history i.e. Diet, Fasting during pregnancy, Avoiding particular food during pregnancy, Consumption of additional food.

- Majority 151 (75.5%) of the antenatal women were non vegetarian, 46 (23%) were vegetarian and only 3 (1.5%) were eggeterian.
- Regarding fasting during pregnancy 18 (9%) of antenatal mothers were keeping fast during pregnancy
- Only 7 (3.5%) of antenatal mothers avoided particular food during pregnancy such as papaya which causes abortion, pumpkin, brinjal, sweet potato considered as heat producing foods and affects fetus.
- 11 (22%) of antenatal mothers consumed additional food during pregnancy.

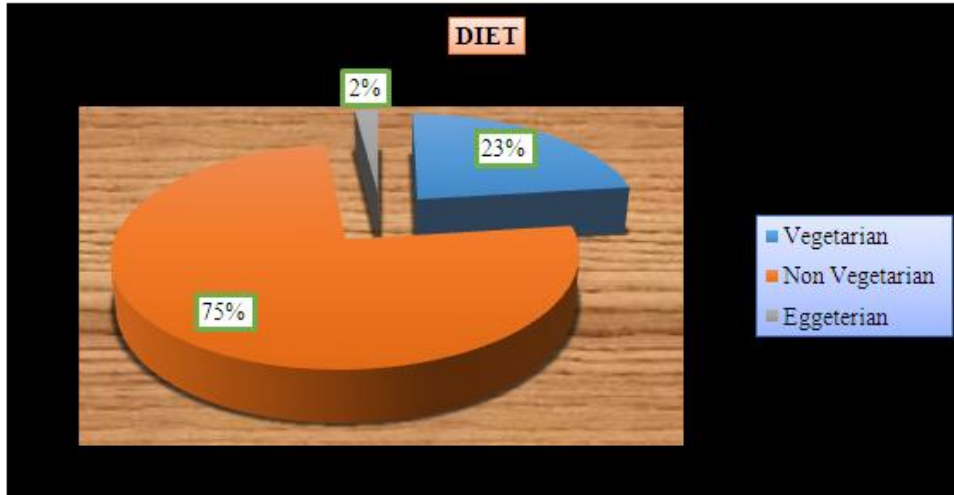


Fig. 12: Pie Diagram Showing Percentage Distribution of Antenatal Mothers According to Diet

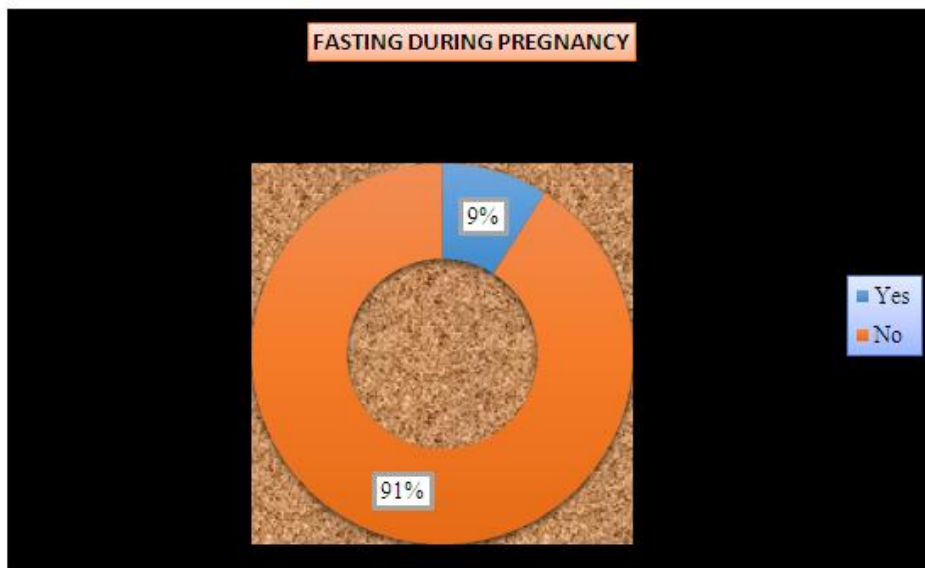


Fig. 13: Dough Nut Chart Showing Percentage Distribution of Antenatal Mothers According to the Fasting During Pregnancy

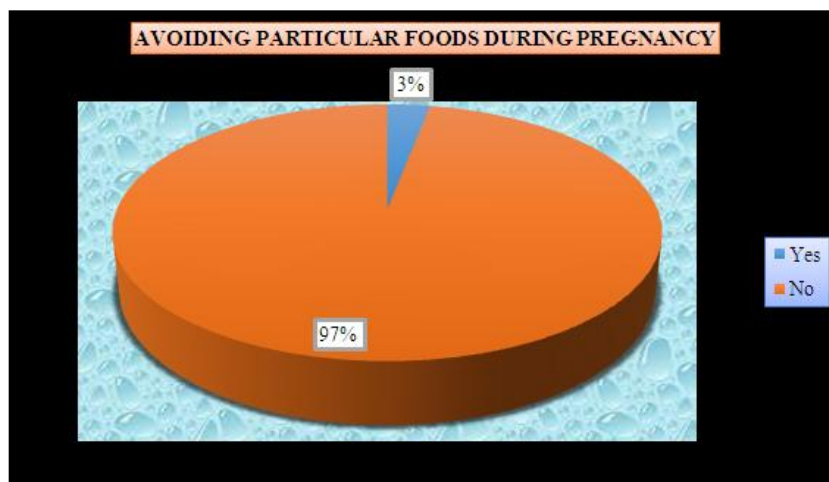


Fig. 14: Pie Diagram Showing Percentage Distribution of Antenatal Mothers by Avoiding Particular Foods During Pregnancy

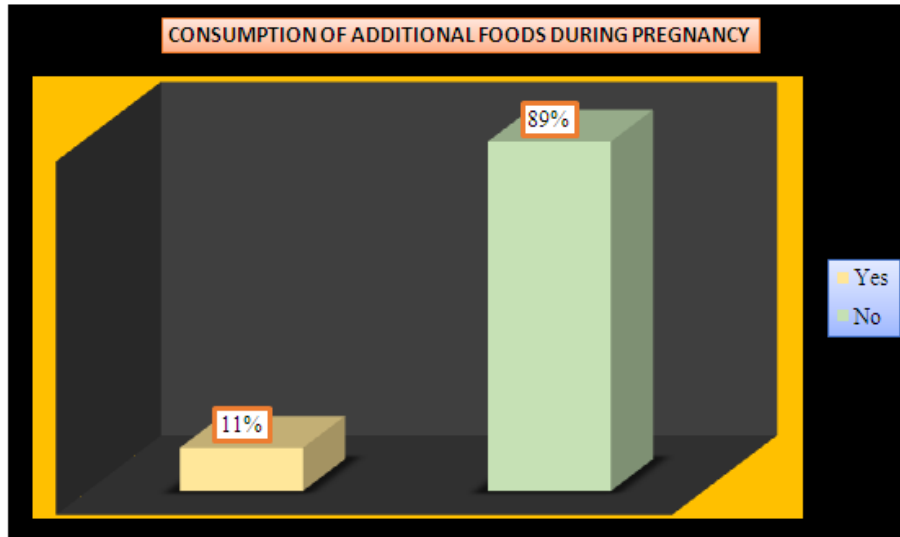


Fig. 15: Bar Diagram Showing Percentage Distribution of Antenatal Mothers Consuming Additional Foods During Pregnancy.

Table 3
Frequency and Percentage Distribution of Dietary Intake of Calorie, Protein and Iron by Using 24 Hrs Dietary Recall Method.

| Daily intake | Frequency | Percentage | RDA |
|-------------------|-----------|------------|-----------|
| N=200 | | | |
| Calorie | | | |
| Adequate intake | 40 | 20 | 2500 kcal |
| Inadequate intake | 160 | 80 | |
| Protein | | | |
| Adequate intake | 35 | 17.5 | 60 gm |
| Inadequate intake | 165 | 82.5 | |
| Iron | | | |
| Adequate intake | 0 | 0 | 40mg |
| Inadequate intake | 200 | 100 | |

Table – 3 shows distribution of intake of calorie, protein and iron by using 24 Hrs dietary recall method in antenatal mothers.

- Majority 160 (80%) of antenatal mothers had inadequate intake of calorie as compared to RDA 2500kcal and 40 (20%) had adequate intake of calorie.
- Majority 165 (82.5%) of antenatal mothers had inadequate intake of protein as compared to RDA 60gm and 35 (17.5%) had adequate intake of protein.
- The entire subjects 200 (100%) had inadequate intake of iron as compared to RDA 40 mg.

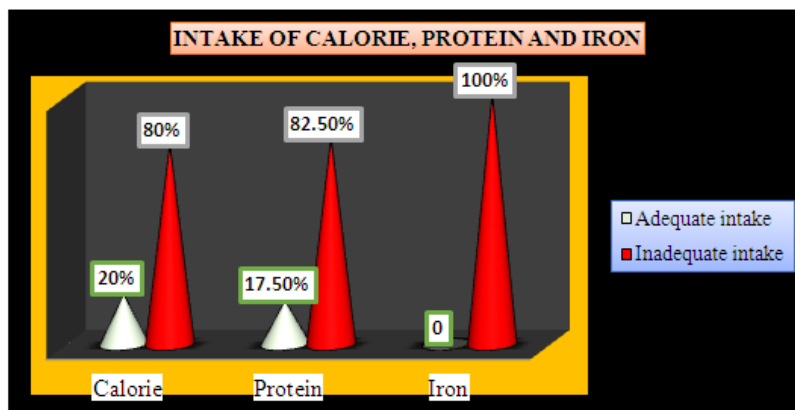


Fig. 16: Pyramidal Graph Showing Percentage Distribution of Antenatal Mothers According to Dietary Intake of Calories, Protein and Iron by Using 24Hrs Dietary Recall Method.

Table – 4
Frequency and Percentage Distribution of Obstetric History of Antenatal Women
N = 200

| S. no | Obstetrical history | Frequency | Percentage |
|------------|---|-----------|------------|
| 12 | Registration | | |
| a | 1 st trimester | 125 | 62.5 |
| b | 2 nd trimester | 75 | 37.5 |
| c | 3 rd trimester | 0 | 0 |
| 13 | Period of gestation | | |
| a | 1 st 12 weeks | 18 | 9 |
| b | 13-28 weeks | 81 | 40.5 |
| c | 28 – 35 weeks | 63 | 31.5 |
| d | More than 35 weeks | 38 | 19 |
| 14 | Parity | | |
| a | Primi | 64 | 32 |
| b | 1 | 78 | 39 |
| c | 2-3 | 48 | 24 |
| d | 4+ | 10 | 5 |
| 15 | Pregnancy interval | | |
| a | Less than 1 yr | 6 | 3 |
| b | 1-2 yr | 49 | 24.5 |
| c | More than 2 yr | 81 | 40.5 |
| 16 | Do you take iron preparation, if yes | | |
| a | Is it tablet? | 170 | 85 |
| b | Is it syrup? | 21 | 10.5 |
| c | Is it injection? | 0 | 0 |
| 17 | Pattern of iron folate supplement use | | |
| a | Regular | 119 | 59.5 |
| b | Irregular | 66 | 33 |
| c | Don't take | 6 | 3 |
| 18. | How do you take iron tablet, with | | |
| a | Water | 157 | 78.5 |
| b | Milk | 17 | 8.5 |
| c | Juice | 17 | 8.5 |
| d | Tea/coffee | 0 | 0 |
| 19 | Have you taken any anti parasitic medication during pregnancy? | | |
| a | Yes | 167 | 83.5 |
| b | No | 33 | 16.5 |
| 11 | Habit of walking bare foot outside | | |
| a | Yes | 29 | 14.5 |
| b | No | 171 | 85.5 |

Data given in Table 4 shows the following findings regarding obstetrical history of antenatal mothers.

- Maximum 125 (62.5%) of antenatal mothers had registered in 1st trimester and 75 (37.5%) had registered in 2nd trimester.
- According to gestational period 81 (40.5%) of antenatal women having gestation period between 13-28 weeks, 63 (31.5%) had gestation period between 28-35 weeks, 38 (19%) had gestation period more than 35 weeks and 18 (9%) were having 1st 12 weeks of gestation period .
- As regard to parity 78 (39%) of antenatal women were having one child, 64 (32%) were primi, 48 (24%) having 2-3 children and 10 (5%) were having more than 4 children.
- Maximum 81 (40.5%) antenatal mothers having pregnancy interval between present and previous last pregnancy was more than 2yrs., 49 (24.5%) having birth space between 1-2 yrs and 6 (3%) having less than 1 yr.
- Majority 170 (85%) antenatal mothers were taking iron preparation in the form of tablet and 21 (10.5%) in syrup formation.
- Regarding pattern of iron folate supplement use in antenatal mothers, 119 (59.5%) had regular intake , 66 (33%) had irregular intake of ironfolate supplement and 6 (3%) don't take iron supplement.
- Majority 157 (78%) of antenatal women take ironfolate tablet with water and 17 each (8.5%) take iron tablet with milk and juice respectively .
- Majority 167 (83.5%) had consumed antiparasitic medication during pregnancy.
- Majority of antenatal mothers 171 (85.5%) did not have a habit of walking bare foot outside and 29 (14.5%) had a habit of walking bare foot outside.

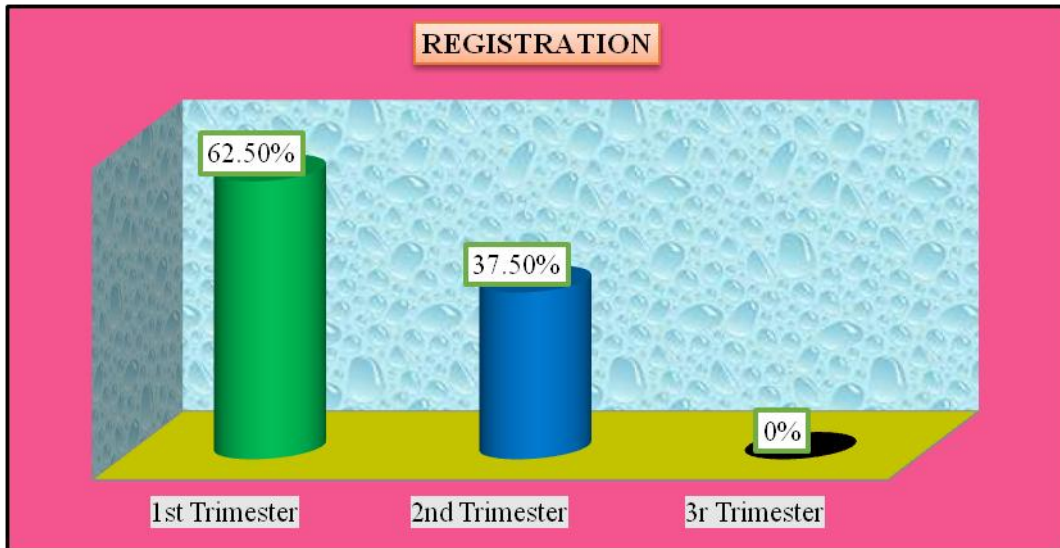


Fig. 17 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers Regarding Registration done in Respective Trimester

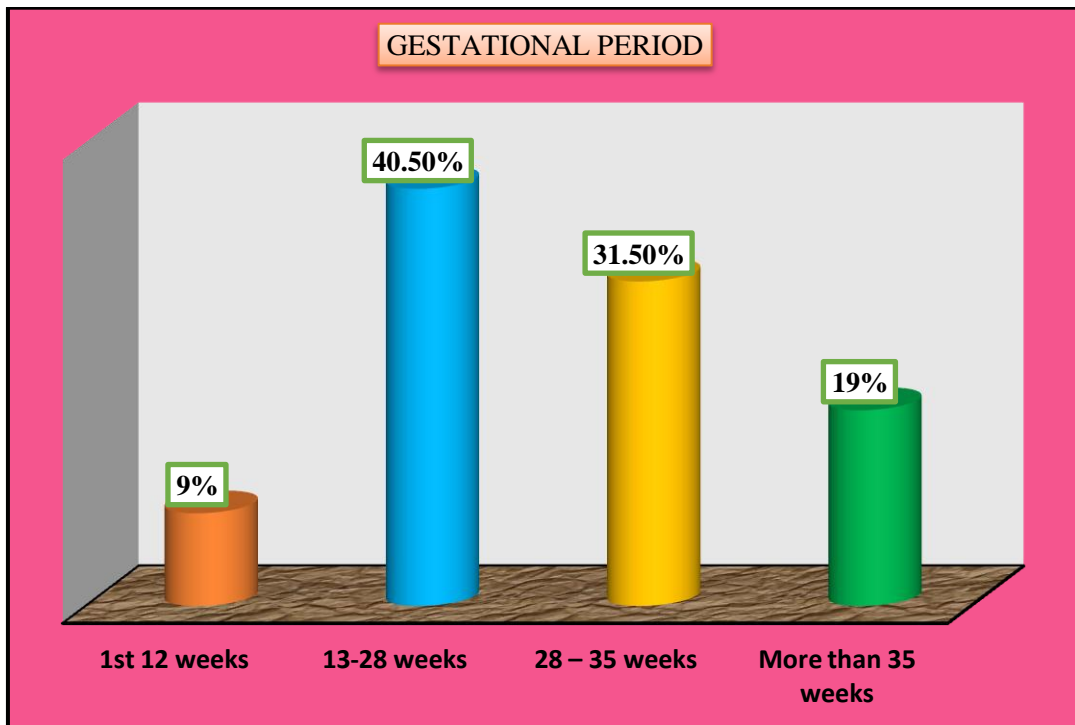


Fig. 18 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers According to Gestational Period.

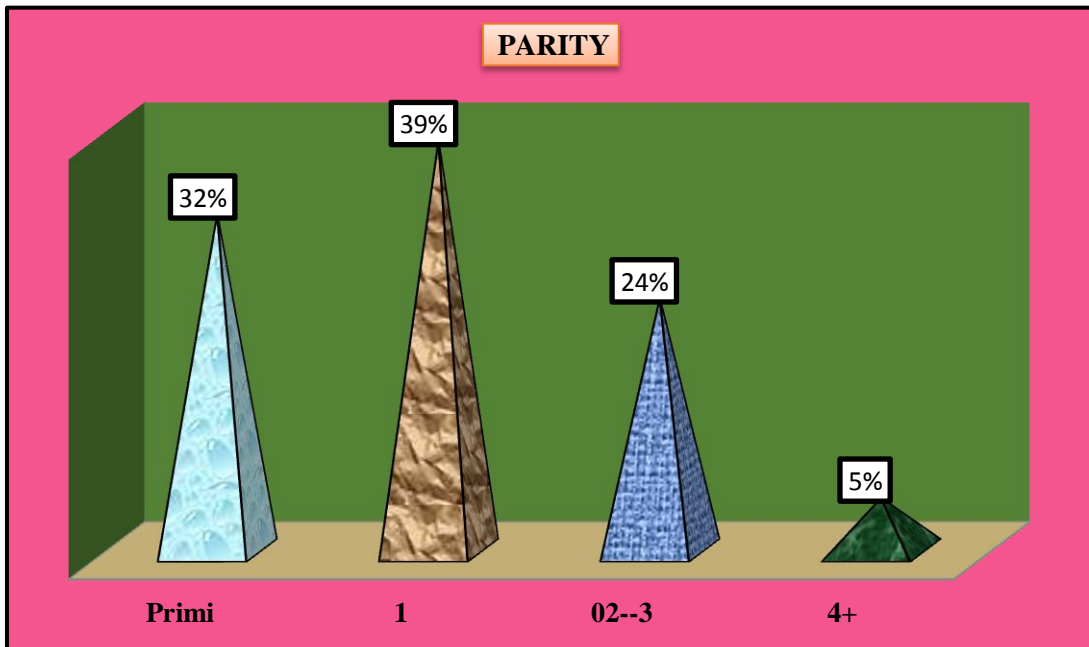


Fig. 19 : Pyramidal Graph Showing Percentage Distribution of Antenatal Mothers According to Parity

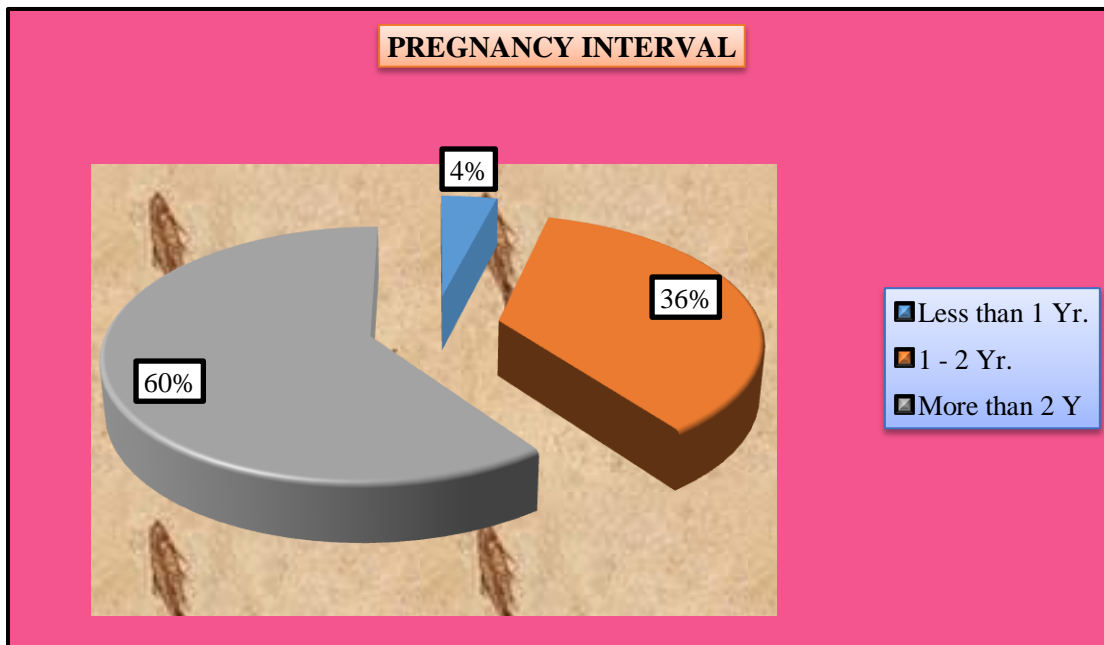


Fig. 20 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers According to Pregnancy Interval Between Present and Previous Pregnancy.

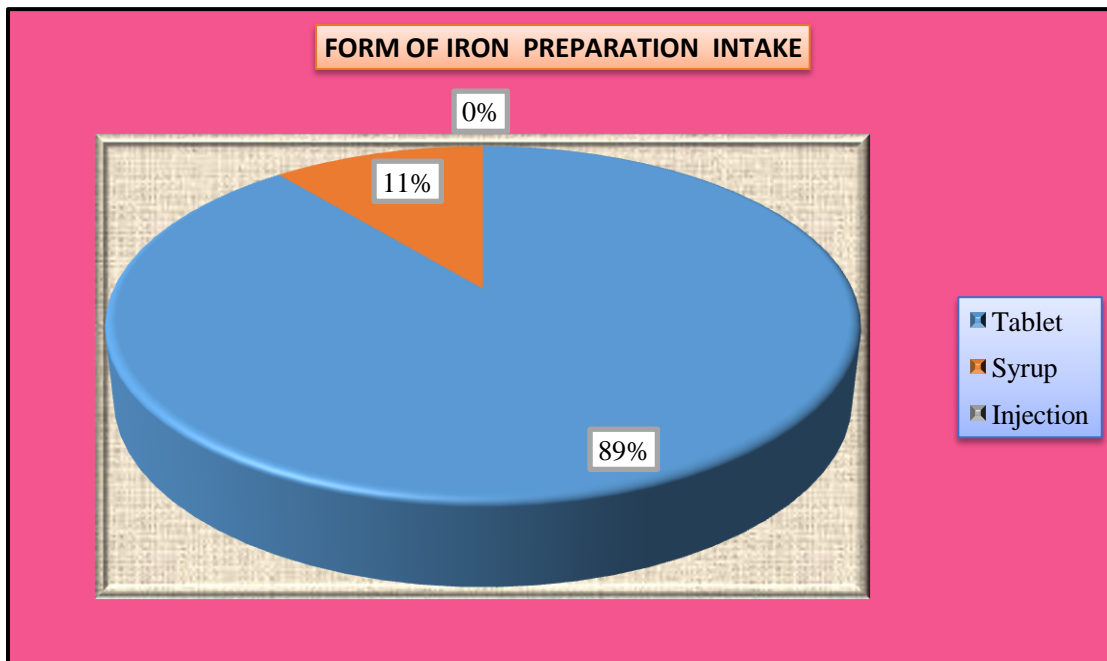


Fig. 21: Pie Diagram Showing Percentage Distribution of Antenatal Mothers Regarding Form of Iron Preparation Intake

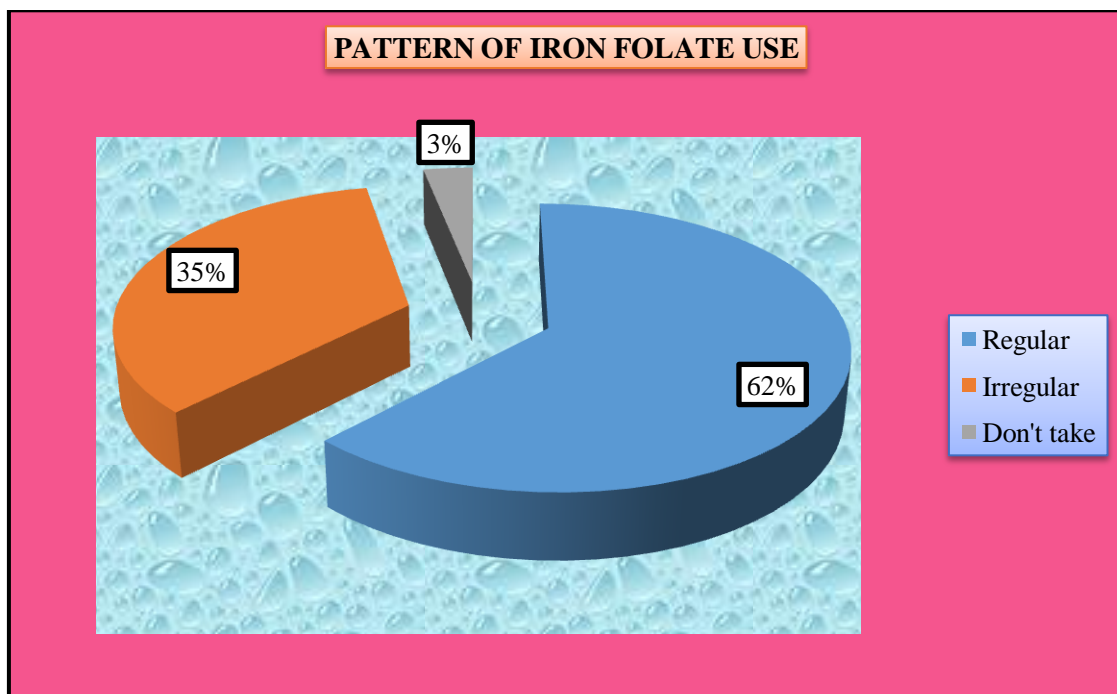


Fig. 22 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers in Pattern of Ironfolate Use

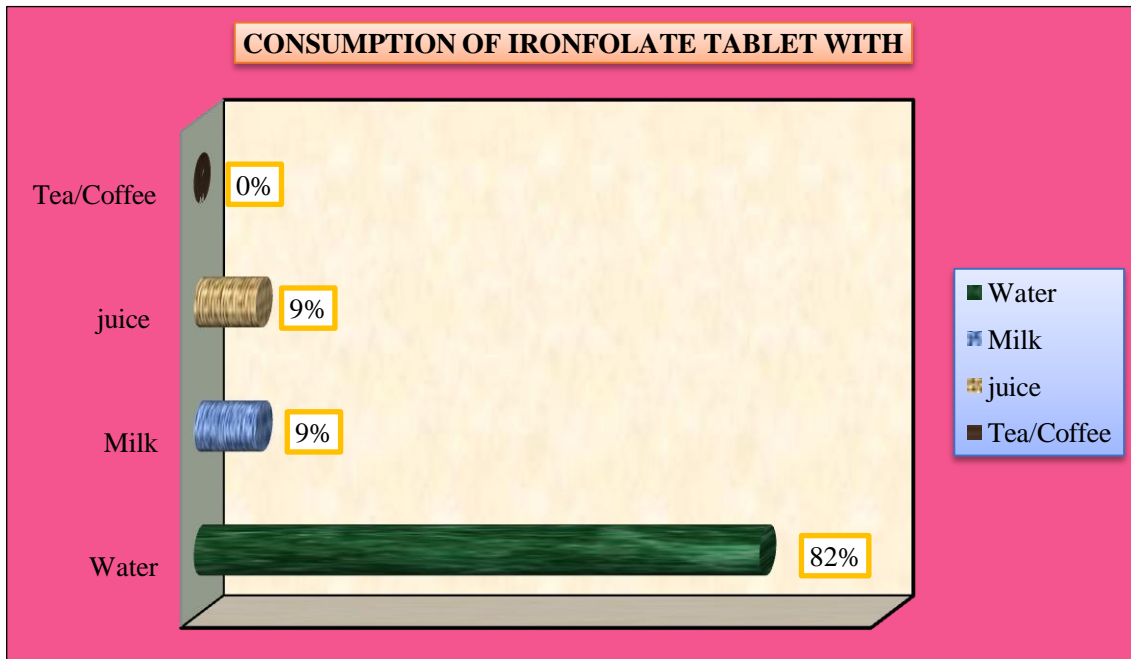


Fig. 23 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers Consuming Ironfolate Tablet with the Following Drinks.

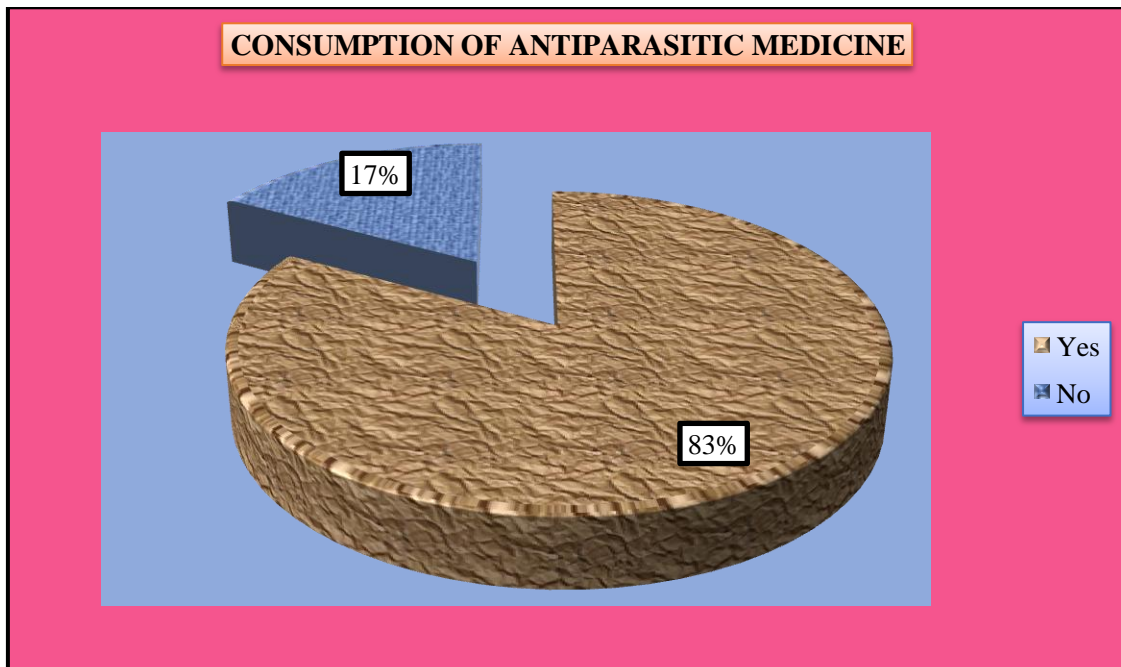


Fig. 24 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers Regarding Consumption of Antiparasitic Medicine

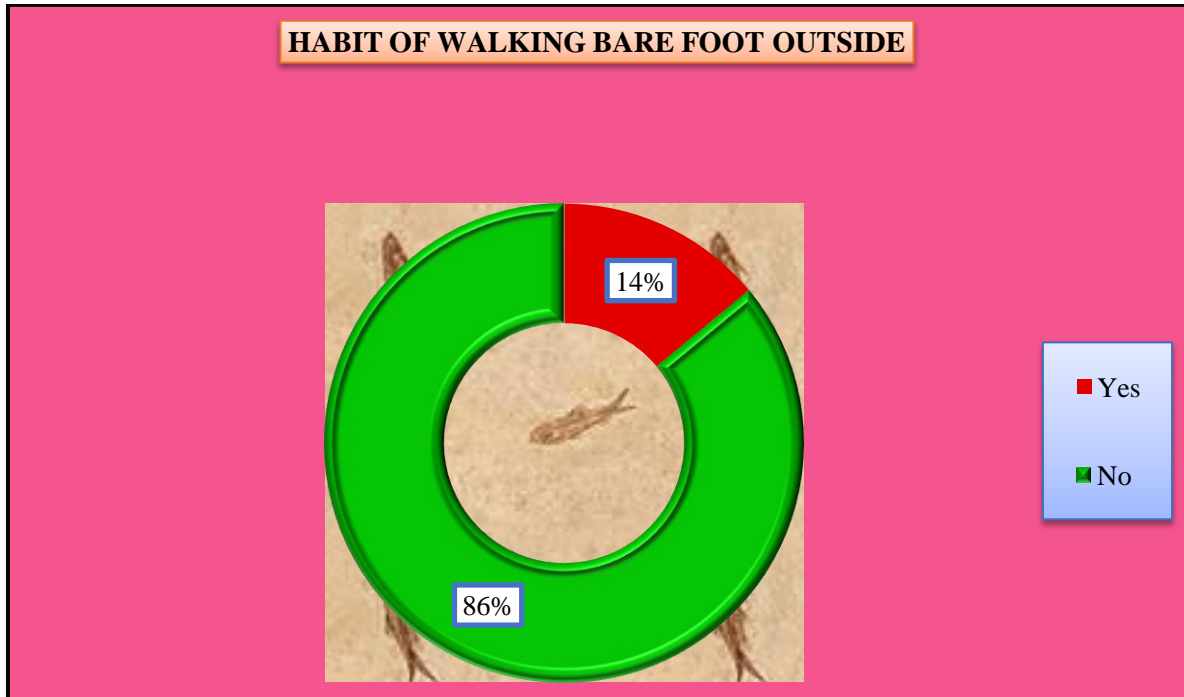


Fig. 25 : Dough Nut Chart Showing Percentage Distribution of Antenatal Mothers Regarding Habit of Walking Bare Foot Outside.

Section II

Findings related to prevalence of aneamia among antenatal mothers.

Table-5
Frequency and Percentage Distribution of Antenatal Women Regarding Prevalence of Anaemia
N = 200

| Hb value | Frequency | Percentage |
|-------------|-----------|------------|
| Anaemic | 123 | 61.5 |
| Non anaemic | 77 | 38.5 |

Data in Table 5 shows that most of the antenatal mothers 123 (61.5%) were anaemic.

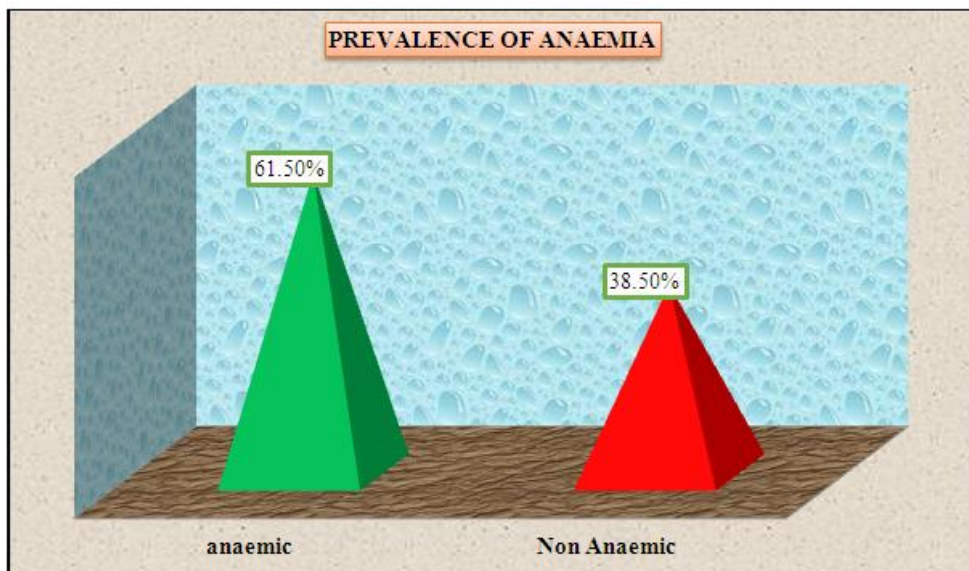


Fig. 26 : Pyramidal Graph Showing Percentage Distribution of Anaemic and Non Anaemic Antenatal Mothers.

Table – 6
Frequency and Distribution of Anaemic Antenatal Mother According to Severity of Anaemia
N=123

| Severity of anaemia | Frequency | Percentage |
|--------------------------------|-----------|------------|
| Mild anaemia – 9-10 gm% | 59 | 29.5 |
| Moderate anaemia – 7 – 8.9 gm% | 45 | 22.5 |
| Severe anaemia - <7 gm% | 19 | 9.5 |

Data in Table 6 shows that according to severity of anaemia 59 (29.5%) of antenatal mother had mild anaemia, 45 (22.5%) had moderate anaemia and 19 (9.5%) had severe anaemia.

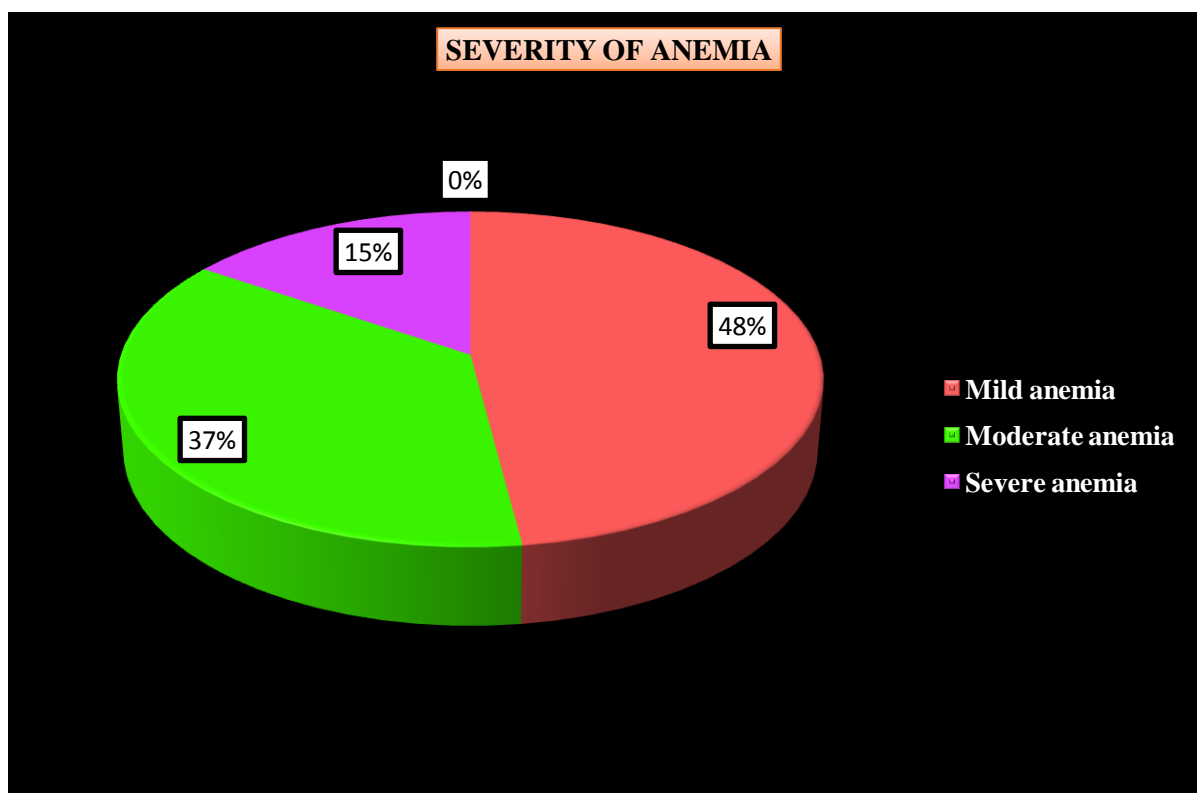


Fig. 27 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers According to Severity of Anaemia.

Section III

Findings related to association between degree of severity of anaemia and selected factors of antenatal mothers.

In order to determine the association between severity of anaemia with selected factors of antenatal mothers chi-square value was computed. The data is given in the following Table 8.

Table 7
Chi square Values showing association between selected factors and degree of severity of anaemia among antenatal mothers.

| S. No. | Sample Characteristics | Frequency of subjects (n) | | | df | Chi-square values | Table value |
|--------|------------------------|---------------------------|------------------|----------------|----|---------------------|-------------|
| | | Mild anaemia | Moderate anaemia | Severe anaemia | | | |
| 1 | Type of family | | | | 2 | 1.194 ^{NS} | 5.991 |
| | ➤ Nuclear | 33 | 22 | 12 | | | |
| | ➤ Joint | 26 | 23 | 7 | | | |
| 2 | Education | | | | 8 | 48.763* | 15.50 |
| | ➤ Graduate & above | 30 | 9 | 1 | | | |
| | ➤ 10+2 | 25 | 24 | 4 | | | |
| | ➤ Middle | 0 | 7 | 8 | | | |
| | ➤ Primary | 4 | 1 | 3 | | | |
| | ➤ No formal | 0 | 4 | 3 | | | |

| | | | | | | | |
|----------|------------------------------|----|----|----|----------|----------------------------|--------------|
| | education | | | | | | |
| 3 | Occupation | | | | | | |
| | ➤ Government job | 5 | 2 | 0 | | | |
| | ➤ Private job | 10 | 9 | 1 | 6 | 7.838^{NS} | 12.59 |
| | ➤ Homemaker | 31 | 19 | 14 | | | |
| | ➤ Any other | 13 | 15 | 4 | | | |
| 4 | Family income / month | | | | | | |
| | ➤ Less than Rs 2000 | 2 | 4 | 3 | | | |
| | ➤ Rs 2001 - Rs5000 | 6 | 14 | 14 | 6 | 39.984* | 12.59 |
| | ➤ Rs 5001 – Rs 10000 | 17 | 13 | 2 | | | |
| | ➤ More than Rs 10001 | 34 | 14 | 0 | | | |
| 5 | Period of gestation | | | | | | |
| | ➤ 1 st 12 weeks | 0 | 6 | 1 | | | |
| | ➤ 12-28 weeks | 26 | 14 | 9 | 6 | 11.597^{NS} | 12.59 |
| | ➤ 28 – 35 weeks | 22 | 13 | 4 | | | |
| | ➤ More than 35 weeks | 11 | 12 | 5 | | | |
| 6 | Parity | | | | | | |
| | ➤ Primi | 12 | 11 | 10 | | | |
| | ➤ 1 | 22 | 16 | 4 | 6 | 10.989^{NS} | 12.59 |
| | ➤ 2 to 3 | 23 | 13 | 4 | | | |
| | ➤ 4+ | 2 | 5 | 1 | | | |
| 7 | Pregnancy interval | | | | | | |
| | ➤ Less than 1 yr | 0 | 4 | 2 | | | |
| | ➤ 1 to 2 yrs | 22 | 15 | 7 | 4 | 14.272* | 9.488 |
| | ➤ More than 2 yrs | 25 | 15 | 0 | | | |
| 8 | Daily Calorie intake | | | | | | |
| | ➤ 1200-1600 | 0 | 4 | 37 | 4 | 178.96* | 9.488 |
| | ➤ 1601-2000 | 8 | 33 | 0 | | | |
| | ➤ 2001-2004 | 41 | 0 | 0 | | | |

N= 123

Data given in Table 7 shows that computed chi square values between severity of anaemia with selected variables i.e. Education, family monthly income, pregnancy interval between present and previous pregnancy and nutrition pattern are statistically significant as evident from χ^2 values of **48.763, 39.984, 14.272 and 178.96** respectively.

But there was no significant association between severity of anaemia and type of family, occupation, period of gestation and parity as evident from χ^2 values of **1.194, 7.838, 11.597 and 10.989** respectively.

According to the education, the subjects who had higher education status were found to have mild anaemia whereas those with lower education status had more moderate to severe anaemia. Antenatal mothers with lower family monthly income were more moderate to severe anaemia as compared to family monthly income having more than Rs 10,000. Most of the antenatal mothers with more than 2 years pregnancy interval were mild anaemic. Most of the mothers with low calorie diet intake (low nutrition) were found to have severe anaemia than mothers having diet of more than 2000 calorie/day. Thus the significant chi-square values of education, family monthly income, pregnancy interval and nutrition pattern show that there exists an association.

Section IV

Description of sample characteristics of the antenatal mothers with anaemia (phase ii)

TABLE 8

Frequency and Percentage Distribution of Background Information of Antenatal Women with Anaemia

N = 60

| S. No. | Sample Characteristics | Frequency | Percentage |
|-----------|--|-----------|--------------|
| 1. | Age of the antenatal mothers in years | | |
| a) | 19-25 years | 25 | 41.7 |
| b) | 26-30 years | 26 | 43.3 |
| c) | >30 years | 9 | 15 |
| 2. | Type of family | | |
| a) | Nuclear | 25 | 41.7 |
| b) | Joint | 35 | 58.35 |

| | | | |
|------------|---|----|------|
| 3. | Education | | |
| a) | Graduate and above | 14 | 23.3 |
| b) | 10 + 2 education | 28 | 46.7 |
| c) | Middle education | 14 | 23.3 |
| d) | Primary education | 4 | 6.7 |
| 4. | Occupation | | |
| a) | Government job | 6 | 10 |
| b) | Private Job | 12 | 20 |
| c) | Homemaker | 28 | 46.7 |
| d) | Any other | 14 | 23.3 |
| 5 | Family monthly income | | |
| a) | <Rs 2000 | 6 | 10 |
| b) | Rs 2001-Rs 5000 | 18 | 30 |
| c) | Rs 5001-Rs 10000 | 15 | 25 |
| d) | >Rs 10000 | 21 | 35 |
| 6. | Diet | | |
| a) | Vegetarian | 6 | 10 |
| b) | Non Vegetarian | 54 | 90 |
| 7. | Gestation Period | | |
| a) | 1 st 12 weeks | 0 | 0 |
| b) | 13-28 weeks | 26 | 43.3 |
| c) | 29-35 weeks | 22 | 36.7 |
| d) | Above 35 weeks | 12 | 20 |
| 8. | Parity | | |
| a) | Primi | 22 | 36.7 |
| b) | Multi | 32 | 53.3 |
| c) | Grand multi | 6 | 10 |
| 9. | Birth spacing between previous pregnancy | | |
| a) | Less than 1 year | 4 | 6.67 |
| b) | 1-2 years | 20 | 33.3 |
| c) | More than 2 years | 14 | 23.3 |
| 10. | Severity of anaemia | | |
| a) | Mild | 23 | 38.3 |
| b) | Moderate | 30 | 50 |
| c) | Severe | 7 | 11.7 |

Data given in Table 8 and Figures - 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 represent the sample characteristics of antenatal mothers with anaemia.

- Age wise distribution of subjects show that most 26 (43.3%) of subjects who participated in the study were in the age group of 26-30 years, 25 (41.7%) were in the age group of 19-25 years and 9 (15%) were above 30 years.
- In relation to the type of family, 35 (58.35%) of subjects belonged to joint family and 25 (41.7%) belonged to nuclear family.
- With regards to education status, 28 (46.7%) number of antenatal mothers had higher secondary level education, 14 (23.3%) had graduation and middle level education and 4 (6.7%) had primary level education.
- Regarding the occupation 28 (46.7%) were homemaker, 14 (23.3%) had other than government and private job, 12 (20%) had private job and 6 (10%) had government job.
- As per the family monthly income, 21 (35%) number of antenatal mothers having above Rs 10000, 18 (30%) between Rs 2001-5000, 15 (25%) in the range of Rs 5001-Rs10000 and only 6 (10%) less than Rs 2000.
- According to diet, majority (90%) were non vegetarian and (10%) were vegetarian.
- As per gestational period, 26 (43.3%) antenatal mothers were between 13-28 weeks, 22 (36.7%) were between 29-35 weeks and 6 (20%) were above 35 weeks.
- Regarding parity of antenatal mother 32 (53.3%) were multi, 22 (36.7%) were primi and 6 (10%) were grand multi.
- In relation to pregnancy interval between present and previous last pregnancy, 20 (33.3%) had 1-2 years, 14 (23.3%) had more than 2 years and 4 (6.67%) had less than 1 year.

- According to severity of anaemia, 30 (50%) had moderate anaemia, 23 (38.3%) had mild anaemia and 7 (11.7%) had severe anaemia.

SAMPLE CHARACTERISTICS

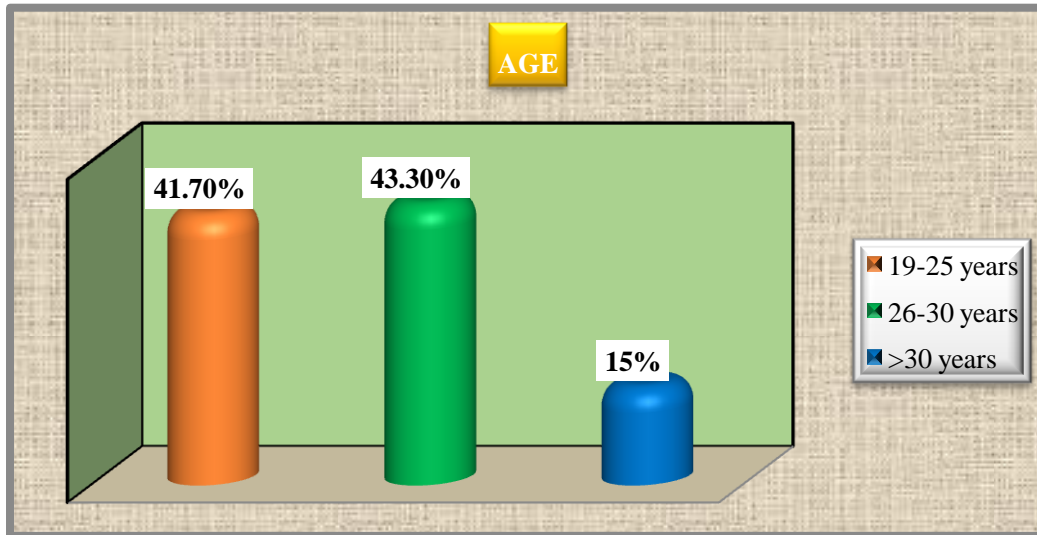


Fig. 28 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers with Anaemia According to Age

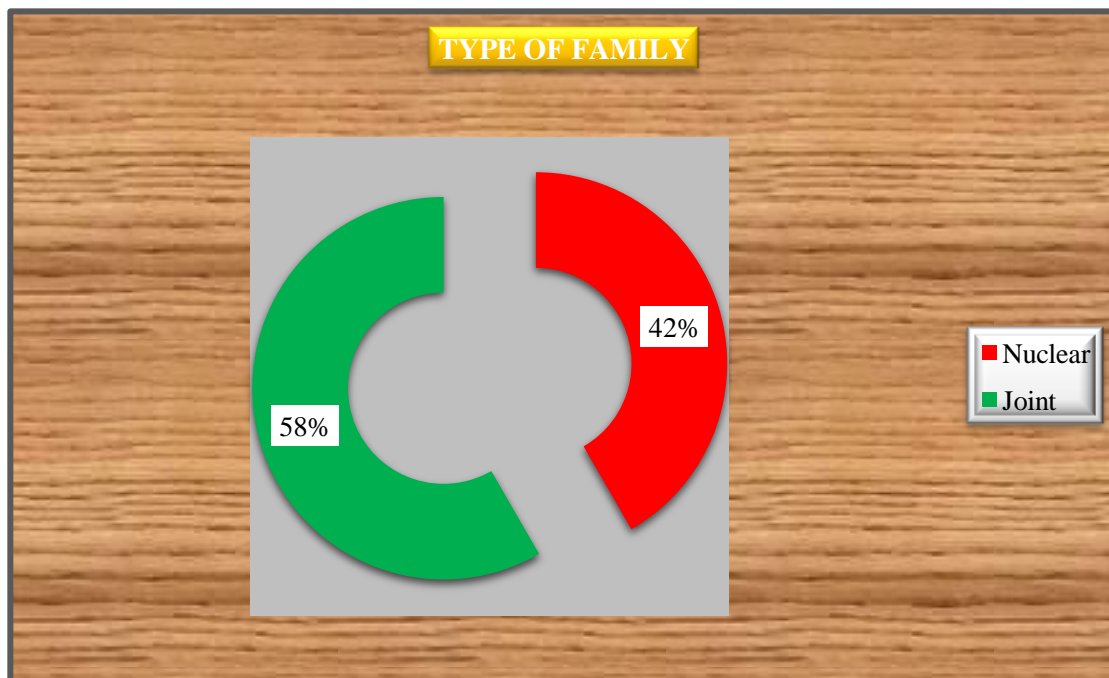


Fig. 29 : Dough Nut Chart Showing Percentage Distribution of Antenatal Mothers with Anaemia According to Type of Family

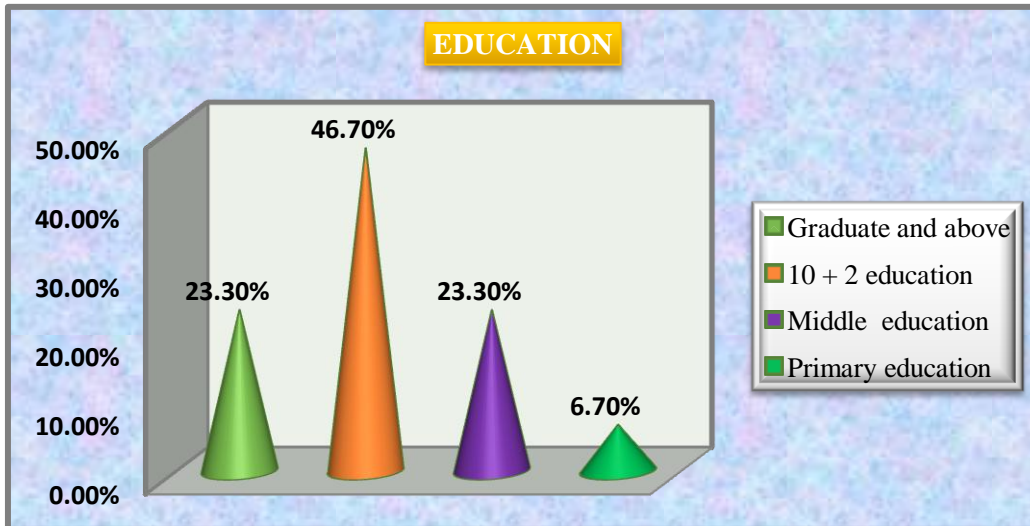


Fig. 30 : Pyramidal Graph Showing Percentage Distribution of Antenatal Mothers with Anaemia According to Education.

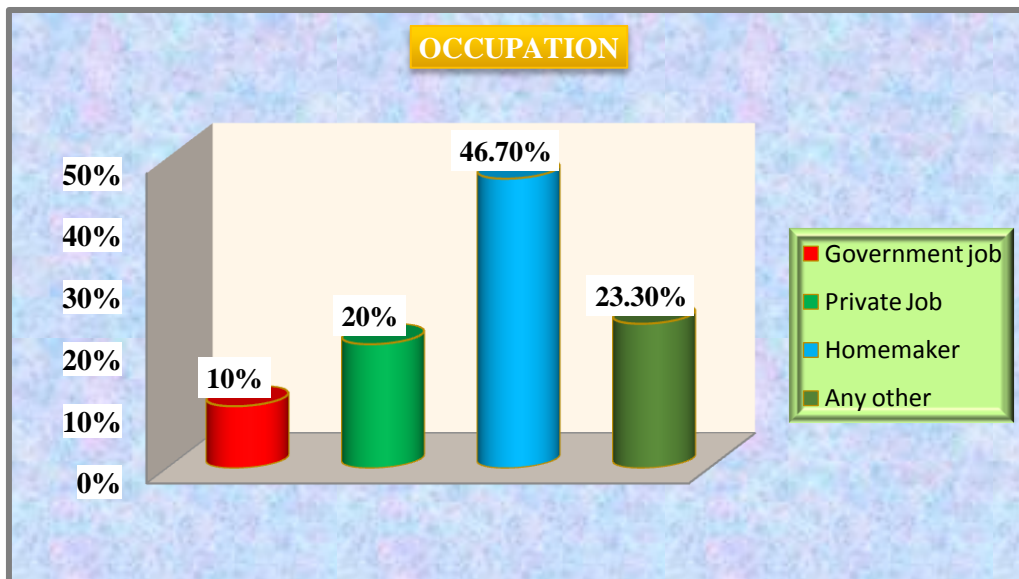


Fig. 31 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers with Anaemia by Occupation

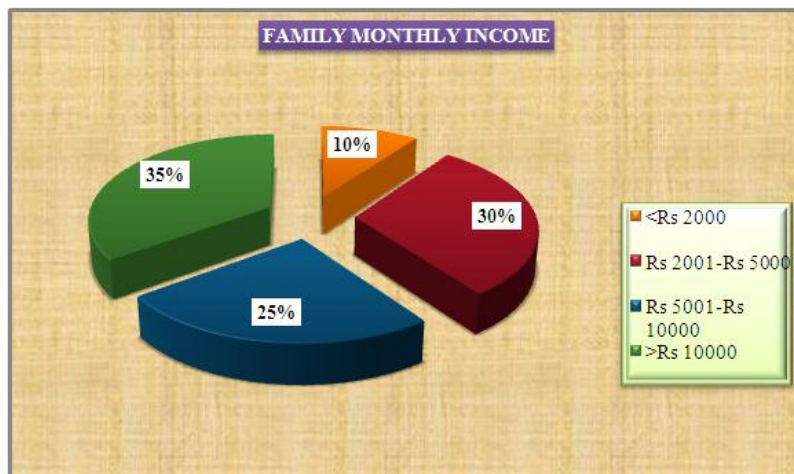


Fig. 32 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers with Anaemia by Family Monthly Income.

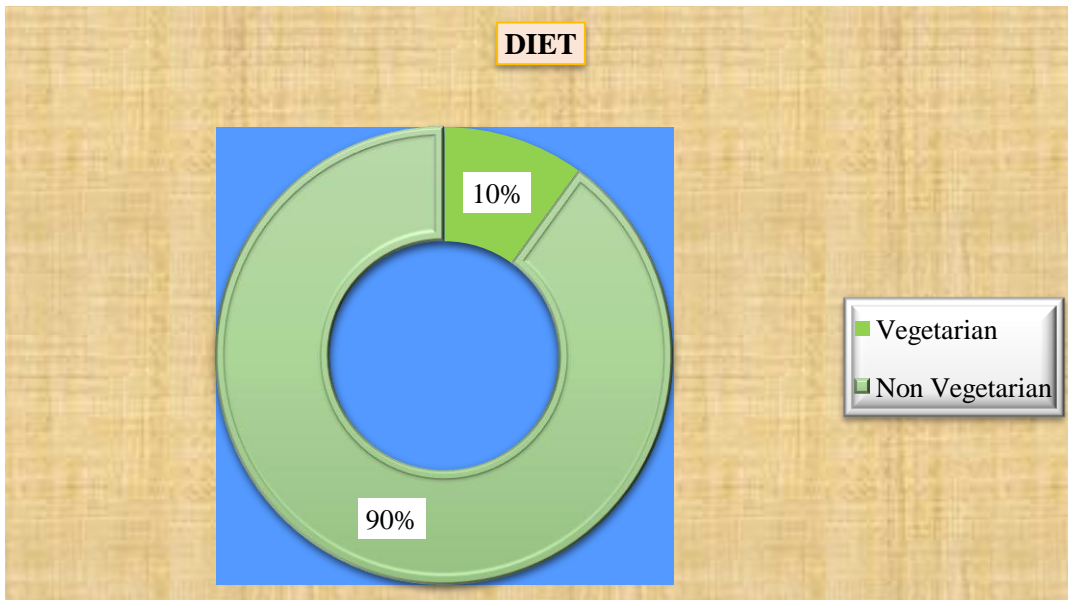


Fig. 33 : Doughnut Chart Showing Percentage Distribution of Antenatal Mothers with Anaemia Regarding Diet.

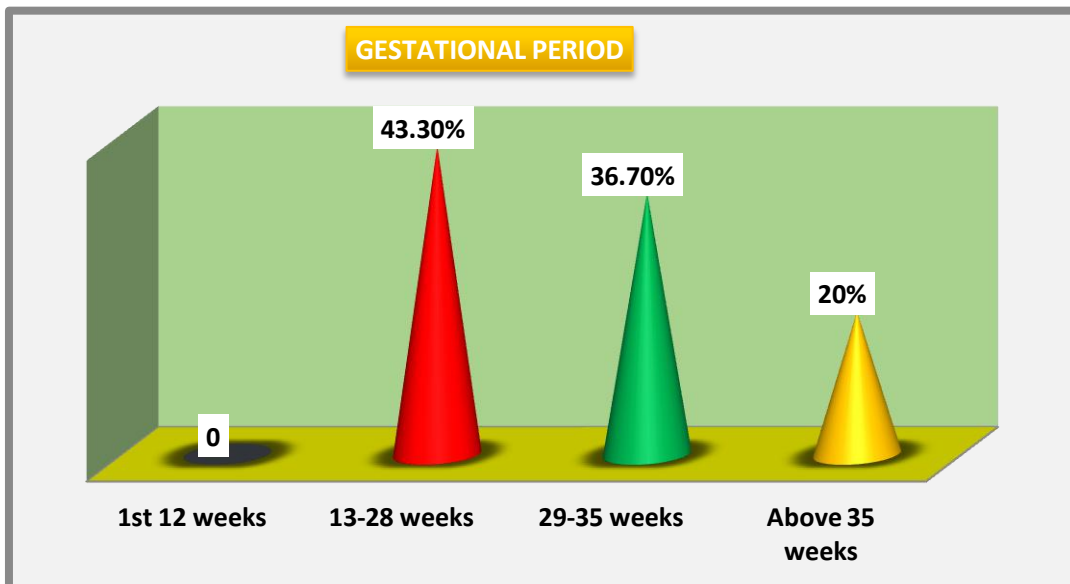


Fig. 34 : Pyramidal Graph Showing Percentage Distribution of Antenatal Mothers with Anaemia by Gestational Period

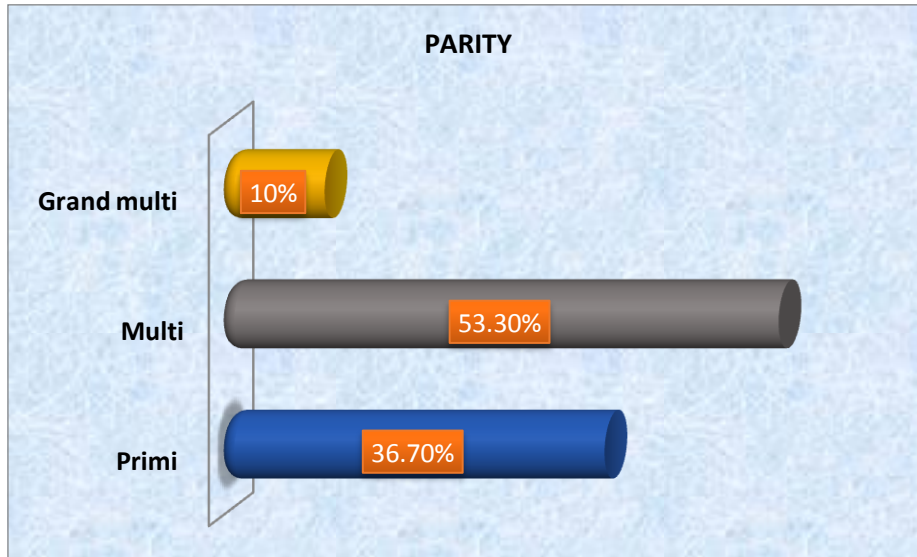


Fig. 35 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers with Anaemia by Parity

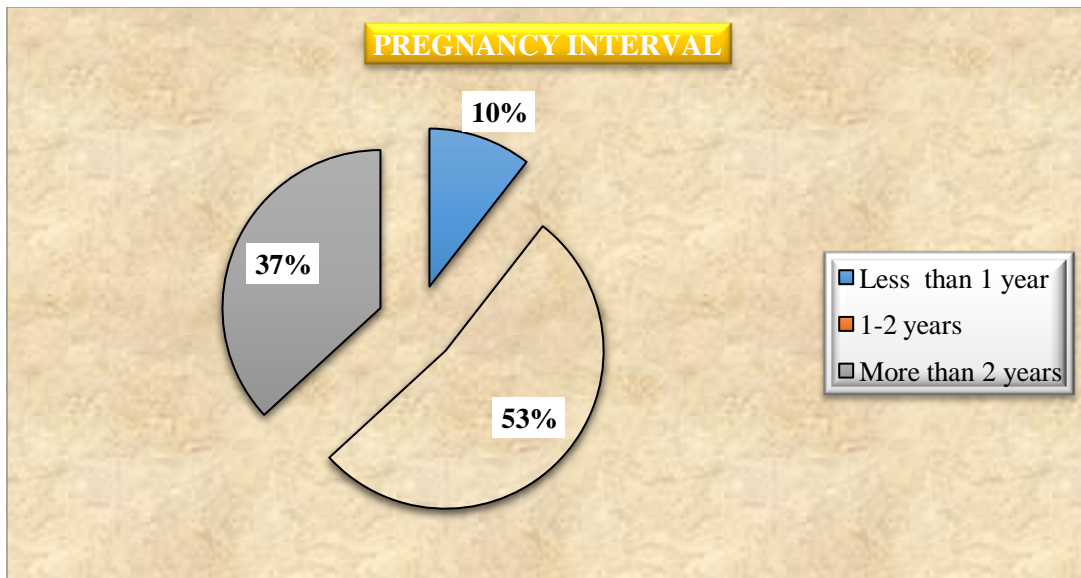


Fig. 36 : Pie Diagram Showing Percentage Distribution of Antenatal Mothers with Anaemia by Pregnancy Interval

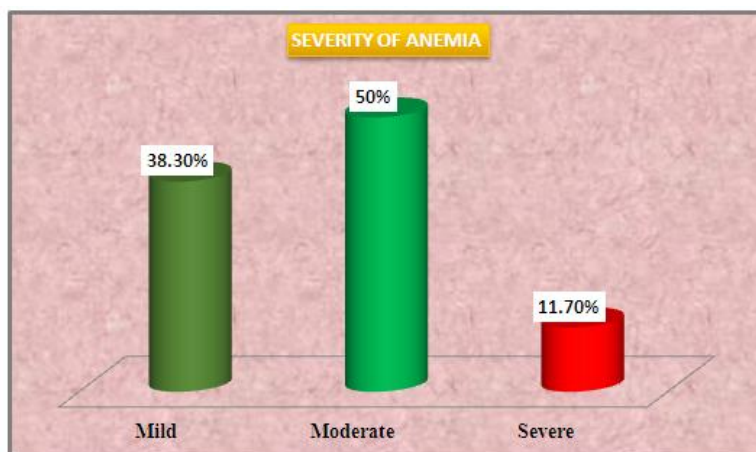


Fig. 37 : Cylindrical Graph Showing Percentage Distribution of Antenatal Mothers According to Severity of Anaemia

SECTION V
FINDINGS RELATED TO EVALUATION OF THE EFFECTIVENESS OF INFORMATION BOOKLET IN TERMS OF KNOWLEDGE REGARDING MANAGEMENT OF ANAEMIA IN ANAEMIC ANTENATAL MOTHERS.

- Mean, median and standard deviation of pre test and post test knowledge scores of antenatal mothers with anaemia.
- Computing “t” value to find out the significance of mean difference between pre-test and post test knowledge scores of antenatal mother

TABLE 9
Mean, median and standard deviation of pre test and post test knowledge scores of antenatal mothers with anaemia.

| Knowledge score | Mean | Median | Standard deviation |
|-----------------|-------|--------|--------------------|
| Pre test | 14.65 | 14.5 | 4.12 |
| Post test | 21.87 | 21.5 | 3.15 |

Maximum possible score:30

The data given in the Table 9 shows that the mean post test knowledge scores of antenatal mothers (21.87) was higher than the mean pre test knowledge score (14.65). The median of the post test score (21.5) was higher than the median of the pre test knowledge score (14.5). The data also revealed that standard deviation of the pre test knowledge score (4.12) was more than the standard deviation of the post test knowledge score (3.15), which indicates that administration of information booklet was effective in making the group more homogenous.

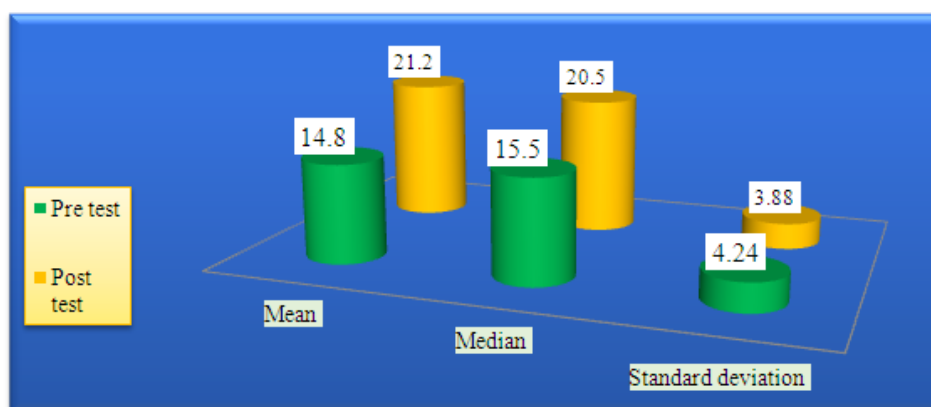


Fig. 38 : Cylindrical Graph Showing Mean, Median and Standard Deviation of Pre Test and Post Test Knowledge Scores of Antenatal Mothers with Anaemia.

TABLE 10
Frequency Distribution of the Pre Test and Post Test Knowledge Scores of Antenatal Mothers with Anaemia.

| Class interval of score | Frequency | |
|-------------------------|--------------------------|---------------------------|
| | Pre test knowledge score | Post test knowledge score |
| 1-3 | 0 | 0 |
| 4-6 | 2 | 0 |
| 7-9 | 6 | 0 |
| 10-12 | 10 | 0 |
| 13-15 | 14 | 0 |
| 16-18 | 15 | 9 |
| 19-21 | 12 | 21 |
| 22-24 | 1 | 15 |
| 25-27 | 0 | 13 |
| 28-30 | 0 | 2 |

The data in Table 10 revealed that the obtained range of the knowledge scores was between 6-22 for the pre test and 16-29 for the post test. The maximum frequency 16-18 with mean of 14.65 and the median of 14.5 for the pre test knowledge scores. The maximum frequency 21 for the post test knowledge score was in the interval of 19-21 with the mean of 21.87 and median 21.5 .

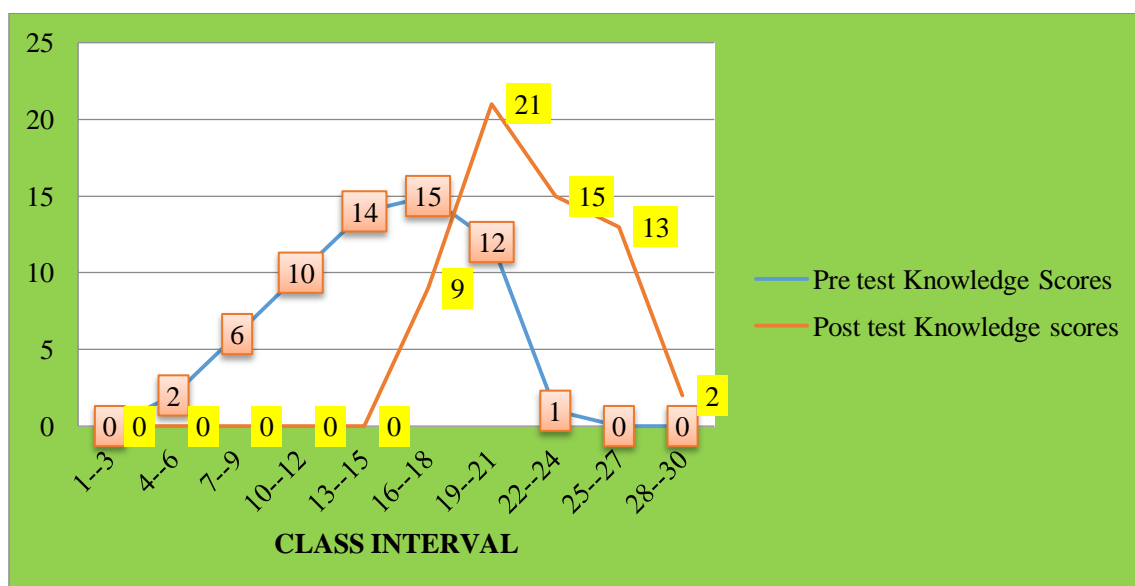


Fig. 39 : Line Graph Showing Frequency Distribution of Pre Test and Post Test Knowledge Scores of the Antenatal Mothers with Anaemia.

In order to determine the significance of difference between mean of pretest and post test knowledge scores of antenatal mothers, “t” value was computed in Table 12

Table 11
Mean, Mean difference, Standard Deviation, Standard Error of Mean Difference and “t” value of the Pre test and Post test Knowledge Scores of antenatal mothers

| Knowledge scores | Mean score | Mean difference (M _D) | Standard Deviation (SD _D) | Standard Error of Mean Difference (SE _{MD}) | “t” Value |
|------------------|------------|-----------------------------------|---------------------------------------|---|-----------|
| Pre test | 14.65 | 7.22 | 3.146 | 0.406 | 17.765 |
| Post test | 21.87 | | | | |

df(59) “t” = 2.00 at 0.05 level of significance

*Significant at 0.05 level

The data given in Table 11 shows that the mean post test knowledge score (21.87) of antenatal mother with anaemia was higher than the mean pre test knowledge scores (14.65) with a mean difference of 7.22, which was found to be statistically significant as evident from the “t” value of 17.765 for df 59 at 0.05 level of significance. Thus, it is established that the difference obtained in the mean pre test and post test knowledge scores was a true difference and not by chance..

Hence, the information booklet was effective in increasing the knowledge of mothers with anaemia regarding management of anaemia.

SECTION VI FINDINGS RELATED TO ASSOCIATION BETWEEN POST TEST KNOWLEDGE SCORES WITH SELECTED FACTORS.

In order to determine the association between the knowledge scores and the selected factors of antenatal mother with anaemia regarding management of anaemia during pregnancy chi square value was computed. The data is given in the following Table 12

Table 12
Chi Square Value Showing Post Test Knowledge Scores of the Ante Natal Mothers with Anaemia with Selected Factors of Antenatal mothers.

N=60

| S. no | Selected variables | Knowledge score | | Chi square value | df |
|----------|------------------------------|-----------------|--------------|---------------------|----|
| | | Below median | Above median | | |
| 1 | Type of family | | | | |
| a | Nuclear family | 11 | 14 | 0.62 ^{NS} | 1 |
| b | Joint family | 19 | 16 | | |
| 2 | Education | | | | |
| a | Graduate & above | 1 | 13 | 25.143* | 3 |
| b | Higher school | 12 | 16 | | |
| c | Middle school | 13 | 1 | | |
| d | Primary school | 4 | 0 | | |
| 3 | Occupation | | | | |
| a | Government job | 1 | 5 | 8.238* | 3 |
| b | Private job | 3 | 9 | | |
| c | House maker | 18 | 10 | | |
| d | Other | 8 | 6 | | |
| 4 | Family monthly income | | | | |
| | Less than Rs 2000 | | | 19.003* | 3 |
| a | Rs 2001-Rs 5000 | 5 | 1 | | |
| b | Rs 5001-Rs 10000 | 14 | 4 | | |
| c | Above Rs 10000 | 8 | 7 | | |
| d | | 3 | 18 | | |
| 5 | Parity | | | | |
| a | Primi | 10 | 12 | 2.973 ^{NS} | 2 |
| b | Multi | 15 | 17 | | |
| c | Grand multi | 5 | 1 | | |
| 6 | Gestational period | | | | |
| a | 1 st 12 weeks | 0 | 0 | 5.643 ^{NS} | 2 |
| b | 13-28 weeks | 17 | 9 | | |
| c | 29 – 35 weeks | 10 | 12 | | |
| d | Above 35 weeks | 3 | 9 | | |
| 7 | Pregnancy interval | | | | |
| a | Less than 1 year | 2 | 2 | 0.983 ^{NS} | 2 |
| b | 1-2 year | 12 | 8 | | |
| c | More than 2 year | 6 | 8 | | |

Significant at 0.05 level of significance at df (1) $\chi^2 = 3.84$, df (2) $\chi^2 = 5.99$, df (3) $\chi^2 = 7.815$.

Data given in Table 12 shows that computed chi square values between gain post test knowledge scores of antenatal mother with anaemia and type of family ($\chi^2 = 0.62$), parity ($\chi^2 = 2.973$), gestation period ($\chi^2 = 5.643$) and pregnancy interval ($\chi^2 = 0.983$) were not found to be statistically significant. Computed chi square values between gain post test knowledge scores of antenatal mother and education ($\chi^2 = 25.143$), occupation ($\chi^2 = 8.238$) and family monthly income ($\chi^2 = 19.003$) were found statistically significant.

Significant chi-square values lead to the conclusion that antenatal mothers with anaemia having an education upto higher school had a comparatively better knowledge regarding management of anaemia. Mothers in Government/private job had more knowledge about management of anaemia than housewives. In terms of family monthly income, more than Rs 10000 had more knowledge on management of anaemia. Thus the significant chi-square values of education, occupation and family monthly income of antenatal mothers with anaemia show that there exists an association.

IV. Discussions

Findings of the Study are Discussed in Terms of Objectives, Theoretical Base and Hypotheses Formulated.

In the present study the prevalence of anaemia found among all registered antenatal mothers were 61.5%. There was significant association between severity of anaemia and the selected variables like education, family monthly income, pregnancy interval and nutrition pattern OF antenatal mothers . These findings are

consistent with findings of **Sharma P. et. al. (2012)**, **Lokare . et al 2008)**, **Raghuram V. Et al (2007)**, **Noronha A. Judith et al (2006)**, **Toteju GS et al (2006)**.

The Information booklet is an effective means to increase the knowledge of antenatal mothers on management of anaemia during pregnancy in the present study. Thus information booklet serves as an effective means to improve the knowledge. These findings are consistent with studies of **Jose D. R. (2013)**, **Minj. R. J. (2013)**, **Philip L. (2012)**, **Dey, M. (2011)**, **George, S. (2011)**.

V. Conclusion

On the basis of above findings of the present study, the following conclusions can be drawn.

1. The prevalence of anaemia among all registered antenatal mothers from Maternity Nursing Home, Kunkuri, Chhattisgarh was found to be 61.5%.
2. According to the education, the subjects who had higher education status were found to have mild anaemia whereas those with lower education status had more moderate to severe anaemia. Antenatal mothers with lower family monthly income were more moderate to severe anaemia as compared to family monthly income having more than Rs 10,000. Most of the antenatal mothers with more than 2 years pregnancy interval were mild anaemic. Most of the mothers with low calorie diet intake (low nutrition) were found to have severe anaemia than mothers having diet of more than 2000 calorie/day. Thus the significant chi-square values of education, family monthly income, pregnancy interval and nutrition pattern show that there exists an association.
3. Knowledge deficit existed regarding the management of anaemia during pregnancy .
4. Information booklet has been significantly effective in improving the knowledge of the antenatal mothers towards management of anaemia during pregnancy.
5. Antenatal mothers with anaemia having an education upto higher school had a comparatively better knowledge regarding management of anaemia. Mothers in Government/private job had more knowledge about management of anaemia than housewives. In terms of family monthly income, more than Rs 10000 had more knowledge on management of anaemia. Thus the significant chi-square values of education, occupation and family monthly income of antenatal mothers with anaemia show that there exists an association.

IMPLICATIONS

The findings of the present study have implications for nursing practice, nursing administration, nursing education and nursing practice.

IMPLICATIONS FOR NURSING PRACTICE –

- Community health nurses and midwives should be encouraged to educate the pregnant women as well as public about safe motherhood regarding prevention, early identification and management of anaemia during pregnancy through different mass media.
- Health promoting practice during childhood and specially during adolescence would prepare the young women for planned parenthood.
- The nursing personnel should emphasis on proper nutrition education, selection of cheap food rich in protein, iron and vitamin C, modification in cooking and eating habits among pregnant women.

IMPLICATIONS FOR NURSING ADMINISTRATOR –

- Inservice education programme should be made as regular feature in maternal and child health departments of the hospital.
- Nursing administration should encourage involvement of families, communities, pregnant women, adolescence in prevention and management of anaemia.

IMPLICATIONS FOR NURSING EDUCATION

- Community health nursing and midwifery nursing curriculum needs to be strengthened to enable nursing students to identify occurrence of anaemia, and to guide adolescence, young women and pregnant women about balanced nutrition for health promotion thus preventing anaemia.
- Assessment is one of the essential steps of nursing process for early identification of anaemia among antenatal mothers who are more risk to have anaemia. Assessment can be done through checklist.
- Health workers must familiarize themselves with prevalence of myths associated with food practice during pregnancy.
- Continuing education programmes should be available for Auxiliary Nurse Midwives and Public Health Nurses, so that community nurses are able to provide adequate information on prevention and management of anaemia and balanced diet.

IMPLICATION FOR NURSING RESEARCH

- Research in the field of anaemia during pregnancy will help the nurse practitioner to adopt the effective intervention to reduce incidence of anaemia in pregnancy.
- Research studies can be conducted to identify various reproductive needs of the women, the social cultural variations and some of the common problems faced by them especially during pregnancy in extended family.

LIMITATION

1. Broad generalisation could not be made due to limited setting and limited sample size.

RECOMMENDATIONS

The following recommendations are made on the basis of the present study:

1. A similar study can be conducted in a larger sample in order to draw generalisation.
2. A study can be conducted on registered pregnant mothers in terms of practice and attitude regarding prevention and management of anaemia attending antenatal clinic.
3. A study can be conducted on a large sample of the same problem and a control group can be kept for comparison of the result.
4. A comparative survey of dietary habit of rural and urban pregnant women can be done.
5. A similar study may be replicated in urban area to compare the findings of rural and urban community.
6. A follow up study can be conducted to evaluate the effectiveness of information booklet on management of anaemia by assessing the retention of knowledge and haemoglobin level of antenatal mothers.

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