Socio-Economic Factors Affecting Anemic Mothers and Its Effect on Their Health: A Sociological Study of Ranikhet

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Abstract

This study has identified factors of anemia, and its effect on anemic mother health. The main objective was to investigate mother and child anemia conditions within socio-cultural, demographic and nutritional context and effect of anemia on anemic mother and effect on their health. Cross-Sectional study was conducted in urban areas of Ranikhet District Almora. Both quantitative and qualitative methods were used to get meaningful detailed information. For capturing maximum variation on socio-cultural, demographic and nutritional aspects, the study was conducted city of the district Almora. This research design enhances the scope of study regarding generalization of research findings. Data has been selected random sample of 60 respondents. Respondent aged 18-49 years with at least one child (less than five year) was taken to explore the research objectives through pre-designed interviewing schedule with open and closed ended questions. In qualitative study detailed information through 8 focus group discussion of 4-12 women were collected. A blood sample was obtained from mothers and their last child to determine hemoglobin levels.

Key wards: - anemia, health, hemoglobin levels, respondent, area, blood sample.

Introduction:- Anemia (from the Ancient Greek anemia, meaning "without blood") is defined as a "quantitative or qualitative deficiency of hemoglobin, a molecule found inside red blood cells (RBCs)". As molecule of red blood cells usually holds oxygen from the lungs to the tissues and anemia leads to hypoxia (less concentration of oxygen) in whole parts the body. Because all human cells based on oxygen for the survival, different degrees of
Anemia can have a wide range of clinical consequences. Anemia is also caused by an iron deficiency in the body (The National Women's Health Information Center 2006). It is a blood condition in which there are too few red blood cells or the red blood cells are deficient in hemoglobin, resulting in poor health. Anemia is also defined if Hb < 11.5 gm/dl and severe anemia was defined if Hb < 8.5 gm/dl (World English Dictionary, 2007). Anemia, as a most frequent blood disorders, grows when the level of healthy RBCs in the human body becomes too short. It can cause different health complications because red blood cells contain molecules of hemoglobin, which holds and passes oxygen to the organs even to last tissues. Hence low concentration of RBCs is a reason of number of health problems, counting weakness, fatigue, mental confusion and strain on organs of body. Common reasons include a lack of dietary iron, heavy blood loss, and the production of too few RBCs due to disorders such as lack of vitality or courage and leukemia.

**Blood Cells (types):** Blood compound consists of liquid called plasma and different three types of blood cells: White blood cells (WBCs) help out against diseases and infection. Secondly, platelets cells prevent blood to make blood thicken and its deficiency causes excess bleeding. Thirdly, red blood cells called erythrocytes: These cells transmit oxygen from lungs to the body's tissues (Marcia, 2003).

**The Red Blood Cells (Erythrocytes)**

The major functions of red blood cells, also known as erythrocytes, are to transport hemoglobin, which in return carries oxygen from the lungs to tissues. In some lower animals hemoglobin circulates as free protein in plasma, not enclosed in red blood cells. However when it is free in plasma of the human beings, approximately three percent of it leaks through the capillary membrane into the tissue spaces or through the glomerular membrane of the kidney into glomerular filtrate each time the blood passes through the capillaries So the hemoglobin to remain the blood stream, it must exist inside red blood cells. The red blood cells have other functions besides simply transport of hemoglobin. For instance, they contain a large quantity of carbonic anhydras, which catalyzes the reaction between carbon dioxide and water, increasing the rate of this reaction many the thousand fold. The rapidity of this reaction makes it possible for the water in blood to react with large quantities carbon
dioxide thereby transport it from the tissues to the lung in the form of the bicarbonate ion (HCO3 −). Also, the hemoglobin in the cells, an excellent acid-base buffer (as is true of most proteins), so that the red blood cells are responsible for most of the buffering power of whole blood.

Concentration of Red Blood Cells in the Blood:
In healthy men the average number of erythrocytes per cubic millimeter is 5, 200, 00 (+ 300,000) and in normal women 4,700,000(+ 300,000). However, the altitude at which the person lives affects the number of red blood cells (Arthur, 1991)

Area of the Body That Produce Red Blood Cells (Erythrocytes)
In the early few weeks of embryonic life, primitive, nucleated red blood cells are produced in the yolk sac. During the middle trimester of gestation the liver is the main organ for production of red blood cells, though reasonable number of red blood cells is also produced by the spleen and lymph nodes. During the latter part of gestation and after birth, red blood cells are produced exclusively by the bone marrow. The bone marrow of essentially all bones produces red blood cells until a person is 5 years old; but the marrow of the long bones, except for the proximal portions of the humeri and tibiae, became quite fatty and produced no more red blood cells after the age of about 20 years. Beyond this age most red cells are produced in the marrow of the membranous bones, such as the vertebrae, the sternum, and the ribs. Even in these bones the marrow becomes less productive as age increases. In children less than 5 years old, the marrow in all the bones of the body is procure for generate red blood cells. “Erythrocytes normally circulate for about 120 days before they are broken down in the spleen. Most of the iron used in hemoglobin can be recycled and reused” (Arthur1991; Brotanek, 2007).

SYMPTOMS OF ANEMIA:-
There are almost 400 types of anemia. Normally, the symptoms of anemia vary according to the different types of anemia and may be associated with other medicinal conditions such as ulcers, hemorrhage, menstrual disorders, different types of cancers and specific
symptoms. The body also has a significant ability to compensate for early stage of anemia. If anemia is mild or developed over a long period of time, symptoms may not be noticed.

Easy tiredness and loss of
1. Problem in appetite.
2. Dryness of tongue and mouth.
4. Problems in digestion.
5. Confusions in matters or forgetfulness.

Muscle fatigue and weakness immunity, unusually fast heart beat, mainly with exercise, breathlessness and headache, and difficulty in concentrating. Anemia develops in different types, but the main symptoms of the anemia are fatigue and weaknesses. So severity of the symptoms depends upon the severity of health chaos. Some symptoms are as:

1. Faint and pale skin.
2. Cold hands and feet (hypoxemia).
3. Lack of sensation or itching in hands, feet and legs.

OBJECTIVES OF THE STUDY:­

In the light of the above scenario and need to document the present study is an effort to know the methods and their Socio-economic factors Affecting Anemic Mothers and its effect on their health: A Sociological study of Ranikhet. Thus the present work under the study of following three objectives:­

1. To study the socio-economic background of the respondents.
2. To assess respondents knowledge of anemia and attitude towards anemia.
3. To find out the relationship between socio-economic, demographic factors and level of anemia.

REVIEW OF LITERATURE: Review of literature is very important part of a research study that aims to develop the scope of the research. Aside from technical chapters like methodology and analysis, the review of literature provides as the reference comparison of
the importance of research study. According to Cooper (1988) a good literature review is characterized by: “a logical flow of ideas; current and relevant references with consistent, appropriate referencing style; proper use of terminology; and an unbiased and comprehensive view of the previous research on the topic”. In this part, the researcher of the study intended to relate how a problem/thesis statement towards an already published work. Review of literature of most important variables is presented here.

Poor socio-economic status is defined as a situation that is comprised of a number of factors such as low educational attainment, limited access to gainful resource, reduced access to ample amount and quality food leading to malnutrition and under nutrition.

Ovell and Abed, (1988) reported that women from poor households are most likely to have a chance of a higher anemia presence. Household low income is not only causing of anemia but low income at state level also affects women anemia status.

In another study Hyder (2004) reported that 56 percent of the women in low income status countries are suffering from anemia, as compared to 18 percent in high income countries.

A higher socio economic status revealed through education and income level, occupation, availability of job opportunities, food and other essentials were strongly related with utilization of nutritional and health facilities affecting health of mother and child (Duncan & Magnuson, 2000; Dhakal et al., 2006)

Bhargava et al. (2006) indicated in their study that the social and economic determinants affecting the iron intake from fish, meat, and poultry which resulting iron deficiency in women. Iron deficiency anemia influences a number of women in South Asian countries particularly during reproductive period. Results of various studies showed that increase in family means of earnings were linked with higher use of iron from the three main sources(chicken, mutton, beef), fish and from all other animal sources.

There is another study (Amy, 2005) correlates family income of the respondents, utilization of health facilities and level of hemoglobin. According to him, women in the lowest income group were less likely to have used health services as compared to high income women.

Awareness and education of mother and father has a profound influence on both mother and child health. Access to education has both direct and indirect impact on mother and
child health. The direct influence is the development of awareness and understanding about better health investments for themselves and their children, better development of relationship in the family, improved patience and cognitive behavior. The indirect impact of education is the return over education in the form of wage earnings further ensuring the access to food and health facilities.

Bailey et al. (1997) studied that there is inverse relationship between the both variables. It means that the increase in level of education has profound effect to increase in the level of hemoglobin. He also concluded that the increase in hemoglobin resulting from good socio-economic conditions improved educational performance.

Bilenko (2004) also worked on maternal education and anemia status of mother and child. He estimated that maternal education and socio-economic status were significantly related to the prevalence of anemia and symptoms of anemia for both the mother and child health. Furthermore, anemic infants were compared with non-anemic infants and it has found that mothers with lower education and poor socio-economic status were bearing anemic infants.

On the issue of mother health and education, WHO (2001) recommends that low maternal education is one of the causes of health problems in pregnancy. It can assumed that impact of iron deficiency anemia, is one of the most severe and important nutritional deficiencies in the world.

A study by Dreyfuss (1998) conducted that a number of barriers identified in taking iron supplements include: lack of knowledge, awareness about anemia and its consequences among women, problematic supply and distribution systems of iron supplement, misconceptions about negative physiological impacts of iron supplements e.g., causing hypertensive related diseases and poor access and infrequent and late utilization of prenatal health services and other cultural beliefs. Senderowitz (1995) suggested that in addition to growth needs, girls need to improve iron status before pregnancy and girls should have more accessible to information about anemia through schools, recreational activities, and via the mass media that are better in their later lives.

Mayo (2007) stated as anemia can be prevented but eating a healthy, varied diet that
included foods rich in iron, foliate and vitamin B-12 was best practice for cautions avoiding iron vitamin deficiency anemia. For prevention of anemia best sources of iron were beef and other meats. While non meat foods included beans, lentils, iron fortified cereals, dark green leafy vegetables, dried fruits, nuts and seeds. Foliate, and its synthetic form, folic acid could be found in citrus juices and fruits, dark green leafy vegetables, legumes and fortified breakfast cereals. Vitamin B-12 could be obtained plentiful from meat and dairy products. Eating plenty of iron–containing foods is particularly important for people who require high iron supplements, such as children, pregnant and menstruating women.

Keeton (2007) revealed that nuclear families often do better. Members in nuclear families have easy access to two parents earning income. Normally, they are well off economically and this directs to have a healthy and safe environment, good schooling, good health care and nutrition.

Yesdudin (2004) concluded that women achieve greater command over physical objects as well as academic and scholarly resources, through continuous process of empowerment. This all helps them out to stand shoulder to shoulder with the men, improve their sense of accomplishment, and self- sufficiency. Further this possession of physical and intellectual capital, enhance their claim of life free of servitude, undue bindings and sex based differences against women. It also improves their choices and decision making power.

A study was conducted in Pakistan by Khan and Ayesha (1998), to probe into the causes of delayed arrival at health centers resulting in women death, before out of which most of the deaths were preventable.

The most disturbing finding of Jafarey and Korejo (1995) was that 5 women who were dead on arrival, lived only 5-10 kilometers away from the hospital, but a combination of social and economic factors delayed their access to the health facility. Finances and lack of available transport, absence of husband from the house, reluctance of family to bring the woman to hospital and inadequate maternal services failed to pass on the patient to the tertiary care facility in time.

Haskell and Brown (1999) reported the importance of Colostrums (first milk produced by
mother), is necessary for the newborn. It is studied that colostrums is three times higher in vitamin A and also ten times richer in beta-carotene than mature milk. Due to its high levels of vitamin A, other protective factors and antibodies, colostrums are frequently considered the first immunization for the baby. In low socio-economic status, children fully depend on breast milk for essential vitamin A and other nutrients.

Bothwell et al. (1989) indicated that breastfeeding is a contributing factor of anemia and anemia symptoms. In physiologic situation, a small quantity of iron is lost from the body every day. The reasons are the shedding of epithelial cells from the skin, and the urinary tract; and the excretion of small amounts of iron in the sweat, gastrointestinal tract and bile urine. In this way, mothers lose about 0.8 mg iron per day.

WHO (1990) reported that mothers less than 18 years old are at the highest risk of pregnancy related complications, delivering a untimely birth or death. Delay of marriage, feasibility and access to family planning would improve both for mother-child chances of survival.

Gwatkin et al. (2002) stated that children of teenagers start their lives with the additional shortcoming of often being low birth weight; because of poor nutritional status and the malnutrition resulting from burden of childhood illnesses due to poor environmental conditions.

Caulfield and Black et al. (2004) noted malaria to be a major cause of morbidity and mortality in tropical and subtropical regions. Malaria frequently afflicts populations that are both poor and malnourished, and a big part of the burden of malaria falls upon the most vulnerable in the population, children and the pregnant women. This review estimates the global burden of malaria linked with a variety of nutrient deficiencies as well as malnourished status in children 0–4 years of age. Even though the association is multifaceted and requires further research.

The National Nutrition Survey (2001) reported that the poor health and death of children less than five years is very high in India; fever, communicable diseases, poor diet and watery stool are frequent with high incidence of anemia in the rural areas. Using the multiple-linear regression correlated of malnutrition of children below 5 years of age has
been explored. All the three nutritional status indicators are alternately taken as the dependent variables and age, age at first food, maternal factors, housing environmental factors and vitamin A intervention factors as independent variables. The results of the regression indicate that the risk of malnutrition rises significantly for children 12-35 months of age in all the three nutritional indicators.

RESEARCH METHODOLOGY:-

AREA OF STUDY: - This Place is in the border of the Almora District Ranikhet, which means Queen's meadow in Hindi, gets its name from a local legend, which states that it was here, that Raja Sudhardev won the heart of his queen, Rani Padmini, who subsequently chose the area for her residence, giving it the name, Ranikhet. The small and deliberately undeveloped hill station of Ranikhet, 50 km West of Almora, is essentially an army cantonment, the home of the Kumauni Rifles. New construction is confined to the Sadar Bazaar area, while the rest of the town above it, climbing up towards the crest of the hill, retains atmospheric leafy pine woods. Beautiful forest trails abound, including short cuts from the bazaar to the Mall; leopards still roam some of the more remote areas within the town boundaries, despite efforts by army officers to prove their hunting skills. Study was conducted in four Village rural areas of tehsil Ranikhet district Almora. Distribution of the area of research was consisted a number of villages from rural areas of the tehsil Ranikhet, which were randomly selected. All of village was selected to capture maximum variation in data

STUDY DESIGN:-

Choice of the study design in scientific research is important for collecting reliable and meaningful information, data analysis, data management and generalization of research findings. Reliability and validity of research findings can only be established with appropriate relevant research designs. Regardless of any study design, research methods need to ensure that valid and reliable answers are retrieved. Though there has been a lot of secondary data available on the study of factors affecting anemia etiology in all ages but this research has some unique aspects as it focuses on socio-cultural factors affecting anemia and its effect on mother child health. To conduct this study, initially secondary
research work is conducted in order to understand anemia, its factors and effect on mother child health.

**SAMPLE SIZE:-**

The question about the sample size is often asked that how much it has to be large. The answer depends on various aspects such as population size, population characteristics, time, available resources, and kind of data analysis to select a representative sample size. It is not necessary that a large sample size would be a true representative sample. Cross-sectional study was conducted to examine the effect of socio-economic and demographic characteristics of the respondents on their symptoms of anemia and hemoglobin level. Both quantitative and qualitative methods/approaches were used. In order to enhance the scope of study maximum variation is captured in rural areas of the district through selecting all the four villages were selected. Multistage sampling method was used to collect the data. Four villages were selected randomly a sample of 60 (15 women from each village) mothers aged 18-49 were interviewed to explore the research objectives.

**DATA COLLECTION:-**

Both qualitative and quantitative methods were used to get meaningful and detailed information. Information was collected using a questionnaire consisting on both open and closed ended questions relevant to research objectives. Before starting actual data collection activity pre-testing on 15 respondents was carried out to examine the workability and sensitivity of the questionnaire.

**ANALYSIS OF SOCIO-ECONOMIC AND DEMOGRAPHIC FACTORS AFFECTING ANEMIC MOTHERS**

Analysis of socio-economic and demographic factors that play most important role to identify the levels of anemia frequency distribution and percentages are presented to explain the different factors. Other statistical analysis like cross tabulation is carried out, to explore the relationship between predicting and response variable. In order to identify the relative significance of independent variables in explaining the levels of anemia, analysis of
different socio-economic, demographic and health variables are described in following section.

Table:-1 Distribution of the respondents and their husbands was according to their education.

<table>
<thead>
<tr>
<th>Respondent education</th>
<th>Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Illiterate</td>
<td>17</td>
<td>28.4</td>
</tr>
<tr>
<td>1-5 class</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>6-12-class</td>
<td>14</td>
<td>23.4</td>
</tr>
<tr>
<td>13+</td>
<td>8</td>
<td>13.2</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

**Education of the respondents: -** This table shows that 28.4 percent of the respondents were illiterate. 35 percent of the respondents had education up to primary level, 23.4 percent had intermediate (12 years of schooling) and 13.2 percent had up to graduation and above level of education. Majority of 35 percent of the respondents were primary level due to lack of facilities. There are several reasons like lack of income resources, school 78 distance and cultural values of early marriages. Education is highly linked with the health of women. Uneducated women due to lack of health information are deficient in promoting their health: it’s an alarming issue of today because country population is increasing. Different groups and feminist organizations are making their efforts to eliminate social injustices against women in Uttarakhand.

**Table .2: Distribution of respondent’s current age and age at their marriage age**

<table>
<thead>
<tr>
<th>Current Age(Years)</th>
<th>Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Up to 24</td>
<td>27</td>
<td>45</td>
</tr>
<tr>
<td>25-29</td>
<td>23</td>
<td>38.3</td>
</tr>
</tbody>
</table>
Current Age of respondents: In this study the mothers were selected under age category 15-49 years. Table 2 reveals that majority of the respondents 45 percent belonged to age category Up to 24 years, 38.3 percent belonged 25-29 and 10 percent belonged to 30-34 years, while 6.7 percent belonged to up to 35-above years. Thus it is found that maximum number of women of marriageable age is not above 25 years which is very much susceptible to anemia.

Table: 3 Distribution of the respondents (women) according to their type of family.

<table>
<thead>
<tr>
<th>Type of Family</th>
<th>Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint</td>
<td>21</td>
<td>35</td>
</tr>
<tr>
<td>Nuclear</td>
<td>39</td>
<td>65</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>

The information presented in table –.3 indicates that a majority of the respondents in the study area belonged to ‘nuclear family system’ (65%) as compared to ‘joint family system’ (35%). The findings of the study show a clear influence of Almora/ Kumauni culture on the living pattern of the people, where most of the families prefer to have nuclear families as their social norms and code of life are pride for them.

Table 4: Distribution of the respondents and their husbands according to their profession.

<table>
<thead>
<tr>
<th>Respondents’ profession</th>
<th>Respondents</th>
<th>Percent</th>
</tr>
</thead>
</table>

Profession and income:- Profession is a engaging in a given activity as a source of income or as a career. Profession is an occupational position and considered as a summary indicator for explaining different characteristics of the individuals (Abhimanyu K, 2001) also defined that occupation is specific activity with a market value that a individual continually pursues for purpose of obtaining a steady slow as flow of income In rural society, profession directly affects on the livelihoods of the people. Table displays the working status of the women. Regarding the profession of the respondents as showed in table, 51.5 percent of the respondents were housewives, 21.6 percent were self employed and laborer, 15 percent worked on farm or cared livestock and only 11.9 percent were the govt. employees. In Kumauni women participation in economic activity (cash earning is quite negligible as reflected from the study findings). Although changes in woman’s role are covering still traditional values, rearing and bearing of children, conjugal loyalty and performing household chores are honored.

Table 5: Distribution of the respondents according to their economic status

<table>
<thead>
<tr>
<th>Respondents income (Rs.)</th>
<th>Respondents</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>No income</td>
<td>29</td>
<td>48.3</td>
</tr>
<tr>
<td>Up to 3500</td>
<td>8</td>
<td>13.4</td>
</tr>
<tr>
<td>3501-6500</td>
<td>14</td>
<td>23.3</td>
</tr>
<tr>
<td>6501+</td>
<td>9</td>
<td>15</td>
</tr>
<tr>
<td>Total</td>
<td>60</td>
<td>100</td>
</tr>
</tbody>
</table>
Respondent's monthly income: Income is an indicator of social position of someone in society and social position determines health status of individual and families. Well income status refers to good health of women studied that, wealthier women are almost twice as likely as those with lower incomes to report excellent/very good health. About 48.3 percent of the respondents had no income because they were housewives, majority of them had low education so they couldn’t avail any work opportunity and others preferred to live at home to rear and bear the children, 13.4 percent earned up to 3500 rupees. Most of them were laborers (weaving, threading,) and 23.3 percent earned 3501 to 6500 rupees. Mostly, work in agriculture and primary school teaching. The women those reported their income Rs. 6501 and above were the government employees and engaged in teaching and nursing.

Table 6: Distribution of respondents according to attitude towards health facilities

<table>
<thead>
<tr>
<th>Attitude towards health facilities</th>
<th>Respondent</th>
<th>Sometime</th>
<th>Neve</th>
<th>R</th>
<th>%</th>
<th>R</th>
<th>%</th>
<th>R</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>When you fell ill do you visit health clinic?</td>
<td>13</td>
<td>21.6</td>
<td>4</td>
<td>6.6</td>
<td>3</td>
<td>05</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did your husband/in-laws take you to doctor?</td>
<td>05</td>
<td>8.4</td>
<td>3</td>
<td>5</td>
<td>5</td>
<td>8.3</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Did your in-laws take you to doctor?</td>
<td>07</td>
<td>11.6</td>
<td>11</td>
<td>18.3</td>
<td>9</td>
<td>15</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td>25</td>
<td>18</td>
<td>17</td>
<td>60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Attitude towards health facilities: - About 21.6 percent of the respondents frequently visited doctors when they fell ill, 6.6 percent sometimes and 5 percent never visited. Only 8.4 percent of respondents’ husbands/in-laws took to doctors frequently, 5 percent sometimes and 8.3 percent never took them.

### Table 7: Association between education of the respondents and symptoms of anemia

<table>
<thead>
<tr>
<th>Anemia (Symptoms)</th>
<th>Mild % (Number)</th>
<th>Moderate % (Number)</th>
<th>Severe % (Number)</th>
<th>Total % (Number)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Education of the respondents</td>
<td>R</td>
<td>%</td>
<td>R</td>
<td>%</td>
</tr>
<tr>
<td>Illiterate</td>
<td>5(4.5)</td>
<td>29.4</td>
<td>9(8.5)</td>
<td>52.9</td>
</tr>
<tr>
<td>1-5</td>
<td>7(5.6)</td>
<td>33.4</td>
<td>9(10.5)</td>
<td>42.8</td>
</tr>
<tr>
<td>6-12</td>
<td>2(3.7)</td>
<td>14.2</td>
<td>8(7)</td>
<td>57.1</td>
</tr>
<tr>
<td>13+</td>
<td>2(2.1)</td>
<td>25</td>
<td>4(4)</td>
<td>50</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>26.6</td>
<td>30</td>
<td>50</td>
</tr>
</tbody>
</table>

Chi-square value=1.916; DF=6; level of significance=5%; tabulated value=12.59

Since the tabulated value of Chi-square at 5% level of significance with 6 df is greater than calculated value therefore be accept that there is significant association between education of the respondents and symptoms of anemia. Data shows that 52.9 percent illiterate respondents had moderate anemia and about one-fourth i.e. 17.7 percent illiterate respondents had severe anemia, while majority (42.8 percent) primary passed respondents had moderate condition of anemia and major proportion of the educated (13+) had mild and moderate condition of anemia and only 25percent had severe condition
of anemia. As education increased the symptoms of anemia decreased. It means those respondents who had more number of schoolings, they were non-anemic.

Table 8: There is association between the family structure of the respondents and symptoms of anemia.

<table>
<thead>
<tr>
<th>Types of family</th>
<th>Mild</th>
<th>Moderate</th>
<th>Severe</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>Joint</td>
<td>5(5.6)</td>
<td>23.8</td>
<td>9(8.7)</td>
<td>42.8</td>
</tr>
<tr>
<td>Nuclear</td>
<td>11(10.4)</td>
<td>28.2</td>
<td>16(16.25)</td>
<td>41.1</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>26.6</td>
<td>25</td>
<td>41.6</td>
</tr>
</tbody>
</table>

Chi-square value = 2.371; DF = 2; level of significance = 5%; tabulated value = 5.99

This table reflects the relationship between the family type and symptoms of anemia. Chi-square value (2.371) shows a highly significant association between type of family of the respondents and symptoms of anemia. Data shows that respondents those belonged to nuclear families were 30.2 percent who had severe condition of anemia as compared to respondents who belonged to joint families and had 33.3 percent of severe condition of anemia. Family structure in each country depends upon its culture and living style. As study indicates the respondents belonged to nuclear family they had less symptoms of anemia because of less number of family members than joint family structure.

Table 9: Association between income of the respondents and symptoms of anemia

<table>
<thead>
<tr>
<th>Anemia</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>
Chi-square value=2.854; DF=4; level of significance=5%; tabulated value=9.49

Chi-square value (2.854) shows a highly significant association between family monthly income and anemia. Data depicts that low income families had moderate (33.3%) and severe (83.4%) condition of anemia, while high income families had mild (47.8%) and moderate (21.7%) condition of anemia. So data clearly indicate that low income is a cause of poor health. It has been seen from result that iron deficiency anemia was prevalent less in higher income.

Result/conclusion:-

The analysis of socio-economic and demographic factors that play most important role to identify the levels of anemia frequency distribution and percentages are presented to explain the different factors. Other statistical analysis like cross tabulation is carried out, to explore the relationship between predicting and response variable. In order to identify the relative significance of independent variables in explaining the levels of anemia, analysis of different socio-economic, demographic and health variables are described in following section. The Majority of 35 percent of the respondents were primary level due to lack of facilities. There are several reasons like lack of income resources, school 78 distance and cultural values of early marriages. Education is highly linked with the health of women. Uneducated women due to lack of health information are deficient in promoting their health: it’s an alarming issue of today because country population is increasing. Different groups
and feminist organizations are making their efforts to eliminate social injustices against women in Uttarakhand. The 15 percent of the respondents' husbands were illiterate. 26.6 percent of them had education up to primary level, 36.6 percent had intermediate (12 years of schooling) and 21.8 percent had up to graduation and above level of education. The mothers were selected under age category 15-49 years. Table 4.2 reveals that majority of the respondents 45 percent belonged to age category Up to 24 years, 38.3 percent belonged 25-29 and 10 percent belonged to 30-34, while 6.7 percent belonged to up to 35-above years. Thus it is found that maximum number of women of marriageable age is not above 25 years which is very much susceptible to anemia. The findings of the study show a clear influence of Almora/ Kumauni culture on the living pattern of the people, where most of the families prefer to have nuclear families as their social norms and code of life are pride for them. About 21.6 percent of the respondents frequently visited doctors when they fell ill, 6.6 percent sometimes and 5 percent never visited. Only 8.4 percent of respondents' husbands/in-laws took to doctors frequently, 5 percent sometimes and 8.3 percent never took them. Since the tabulated value of Chi-square at 5% level of significance with 6 d f is greater than calculated value therefore be accepted that there is significant association between education of the respondents and symptoms of anemia. Data shows that 52.9 percent illiterate respondents had moderate anemia and about one-fourth i.e. 17.7 percent illiterate respondents had severe anemia, while majority (42.8 percent) primary passed respondents had moderate condition of anemia and major proportion of the educated (13+) had mild and moderate condition of anemia and only 25percent had severe condition of anemia the relationship between the family type and symptoms of anemia. Chi-square value (2.371) shows a highly significant association between type of family of the respondents and symptoms of anemia. Highly significant association between family monthly income and anemia data depicts that low income families had moderate (33.3%) and severe (83.4%) condition of anemia, while high income families had mild (47.8%) and moderate (21.7%) condition of anemia. So data clearly indicate that low income is a cause of poor health. It has been seen from result that iron deficiency anemia was prevalent less in higher income.
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