

## ROLE OF PROTEIN DURING PREGNANCY IN MEWAR AND ARAWALLI ZONE OF RAJASTHAN: A COMPARATIVE STUDY

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### ABSTRACT

*Pregnancy is a most remarkable anabolic process whereby out of food, vitamin, minerals and hormones, a baby is born within nine months. the foetus is in a sense a parasite on the mother and draws its nourishment from her diet. If nourishment of mother is inadequate than her body reserves are drawn upon and depleted. The incidence of prematurity rises with a decrease in the nutritional status of pregnant women. low birth weights, low vitality and large numbers of early deaths occur among infants born to poorly nourished mother. Improving the nutrition of the mother, even in the third trimester of pregnancy improves the status of the infants (Antia,1984). Nutritional value of crops of the Arawalli-Plains and mewar-Hills differ considerably and pregnant women of two zones consume largely preparation of the produce specific to their respective zones. In present paper there is a comparative study done based on a survey on the intake of proteins by 100 pregnant women of Mewar zone and Aravalli plains respectively, traditional belief and habitat and also influence profoundly the pattern of food eaten, relation of proteins to some other nutrients will also be discussed in this paper. The data was collected through questionnaire, observation and secondary sources. The result depicted that the intake of nutrients was higher in. Mewar-hills than the Arawali plains. Further recommendations are suggested for pregnant women.*

**Keywords:** *Pregnancy, Nutritional, Value, Habitat, Traditional Beliefs.*

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### Introduction

Protein is the building block of life for humans. Protein is found throughout the body—in muscle, bone, skin, hair, and virtually every other body part or tissue. It makes up the enzymes that power many chemical reactions and the hemoglobin that carries oxygen in your blood. At least 10,000 different proteins make you what you are and keep you that way. Protein is made from twenty-plus basic building blocks called amino acids. Because we don't store amino acids, our bodies make them in two different ways: either from scratch, or by modifying others. Nine amino acids—histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine—known as the essential amino acids, must come from food. A protein is a naturally occurring, extremely complex substance that consists of amino acid residues joined by peptide bonds. Proteins are present in all living organisms and include many essential biological compounds such as enzymes, hormones, and antibodies Protein is needed to build protoplasm, muscles and tissues, vital fluids like blood, enzymes and hormones that regulates various functions in the body.

Protein forms an essential component of a healthy diet in humans to support both growth and maintenance. During pregnancy, an exceptional stage of life defined by rapid growth and development, adequate dietary protein is crucial to ensure a healthy outcome. Protein deposition in maternal and fetal tissues increases throughout pregnancy, with most occurring during the third trimester. Protein is essential for pregnant women specially during second and third trimester.

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The relationship between the diet of the mother and the wellbeing of the fetus and infant continues to be a matter of great importance, uncertainty and controversy.

Since a developing baby depends on his or her mother's diet for all of his nutritional needs, the expectant mother must eat a nourishing diet to support healthy growth and development of her baby. Protein is one of several essential nutritional requirements during pregnancy for the adequate bone and muscle development.

Child-bearing imposes a great strain and it is important that would be mother a leads healthy life throughout pregnancy. One of the major factors that promotes health and well-being both of the mother and the baby in the womb, is wholesome nourishing food.

Nutritional value of crops of the Aravalli-Plains and mewar-Hills differ considerably and pregnant women of two zones consume largely preparation of the produce specific to their respective zone will be discussed in this paper.

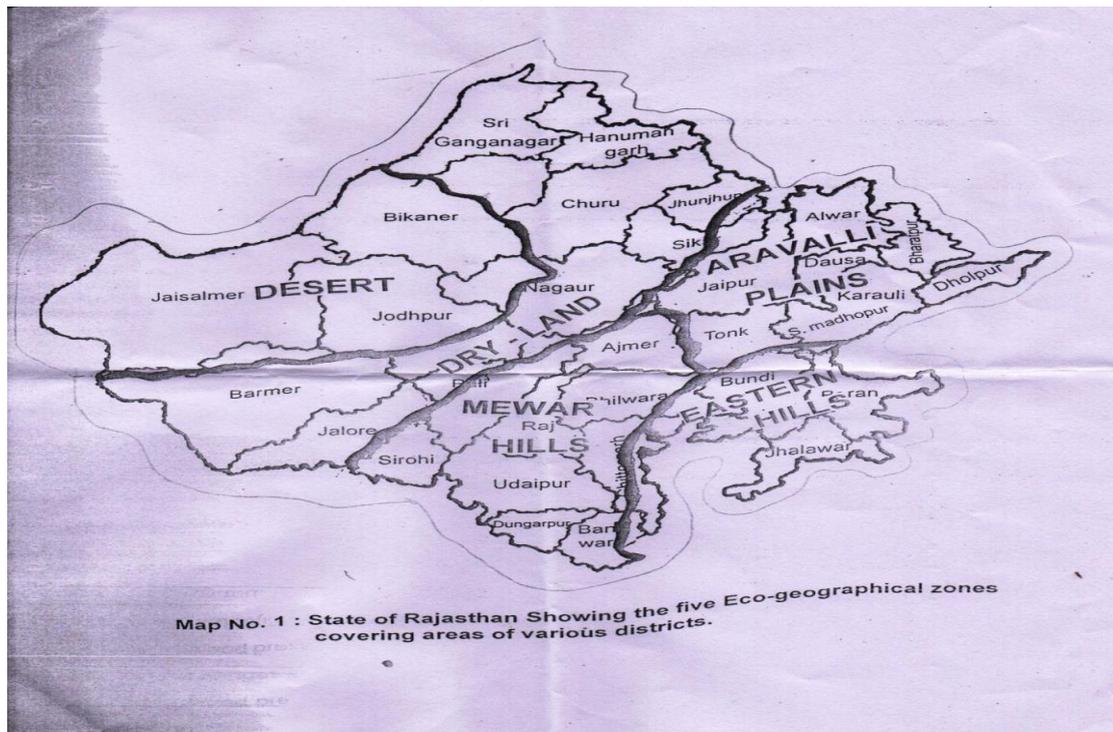
### Objectives

- To study the intake of protein during pregnancy in Aravali and Mewar zones.
- To study the deficiency of protein intake in pregnant women and her neonate.
- To study the intake of protein and other nutrients by pregnant women of Aravalli-plains and Mewar-Hills.
- To examine the effect of habitat and traditional beliefs on pregnant women. Further recommendation are suggested.

### Methodology

#### Local of the Study

Aravali-Plains and Mewar Hills. Aravali hills includes Jaipur, Sikar, Alwar, Bharatpur, Dholpur, Sawai Madhopur, Dausa and Tonk. Wheat and Barley (jau) are produced and consumed in the Aravalli-Plains. Mewar-Hills covers Udaipur, Sirohi. Ajmer, Bhilwar, Dungarpur.



#### Sample Size

100 Pregnant women of each two zones. Total 200 samples.

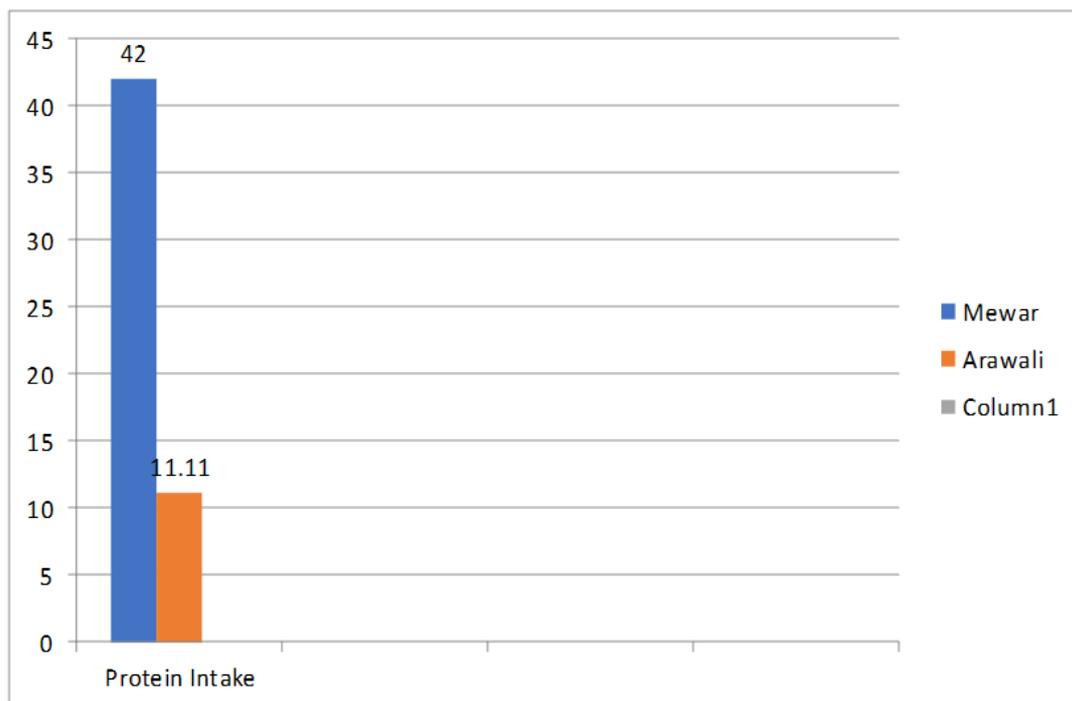
### Tools

Various biometric parameters of the pregnant women were recorded on a Questionnaire English and Hindi version appended (Modified from Kothari, 1994) along with detailed history including family details and socioeconomic status viz. Apart from filling of questionnaires (English and Hindi version Appended) individual interviews were also conducted, regarding the daily diet taken by pregnant women. Nutrient intake for three consecutive days was recorded and the mean daily intake worked out. Observation through twenty four hours recall method Certain nutritional related relationships based on various nutrients intake by pregnant women of the two zones have been compared in the study, e.g. Protein, fiber intake, relationship of protein and blood haemoglobin level, Weight gain and habitat, Calcium intake were studied.

### Observations

#### Protein Intake

In the present study it was found that, the percentage of women taking normal amount of protein (recommended by I. C. M. R.,1998) was higher in Mewar hills (42) than in Arawalli Plains (11.11) and it was observed that women who were taking less Protein were suffering from oedema, anaemia, repeated infections, weakness etc. It was observed that the diet consumed by in large majority of women is based only on cereal, roots, tubers and contain small amount of legumes, vegetables and negligible amount of meat fish and egg. The diet is in general lacking in proteins. It was largely due to misconceptions of pregnant women surveyed there regarding the intake of protein rich foods). (Kulshreshtha,2000).



Graph showing the percentage of pregnant women taking normal amount of protein (recommended by I. C. M. R.,1998) was higher in Mewar hills (42) than in Arawalli Plains (11.11).

#### Intake of Fibre

All plant foods and their products contain some fiber such as cellulose, pectins and gums that makes up their cell walls which is not digested but plays a number of important roles in in the body .It was found that in Mewar zone women were taking more green leafy vegetables, fruits and were aware for their diet even they were taking uncooked and unprocessed food which are having more fibre and the percentage of women taking normal amount of fibre is higher in Mewar Hills(61.63) than the women of Arawalli zone (20) because most of them were consuming breads, noodles, burgers etc. While their diet lacked in fibers (Kulshreshtha,2000).



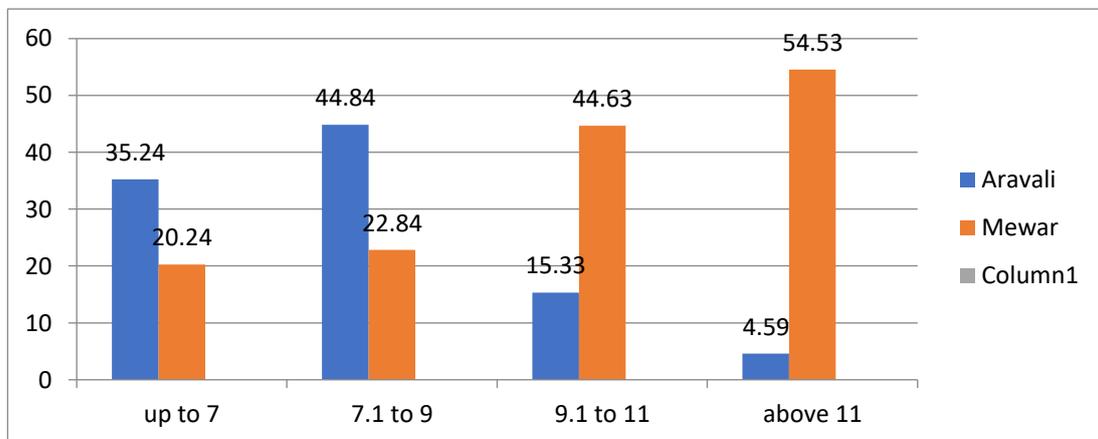
Graph showing the percentage of pregnant women taking the recommended amount of fibers is higher in Mewar Hills (61.63) than the women of Aravalli zone (20).

#### Intake of Hemoglobin

Iron is a major component of hemoglobin, a type of protein in red blood cells that carries oxygen from your lungs to all parts of the body. Without enough iron, there aren't enough red blood cells to transport oxygen, which leads to fatigue. Protein intake plays an important role in the transportation of iron in the body. Therefore, the lack of protein intake can cause iron transport to be inhibited, which results in iron deficiency resulting in anemia. Symptoms are Fatigue, Weakness, Dizziness or lightheadedness, Headache, Pale or yellowish skin, Shortness of breath, Craving or chewing ice (pica) Good nutrition can also prevent iron deficiency anemia during pregnancy. Dietary sources of iron include lean red meat, poultry and fish. Other options include iron-fortified breakfast cereals, dark green leafy vegetables, dried beans and peas.

Regarding the percentage of hemoglobin in women under investigation it was categorized as up to 7 percent (severe anaemia); 7.1 to 9 percent (mild anaemia); 9.1 to 11 percent (moderate anaemia) and above 11 percent (normal).

It was observed that in Aravalli Plains 35.24 percent women were having their hemoglobin percentage up to 7; 44.84 were having 7.1 to 9 percentage; 15.33 were having 9.1 to 11 and only 4.59 percent women were having above 11 percent of blood hemoglobin in mewar hills this percentage was respectively 20.24; 22.84; 44.63 and 54.53, which is higher because in mewar hills pregnant women were taking more protein and iron rich diet than the Aravalli plains.

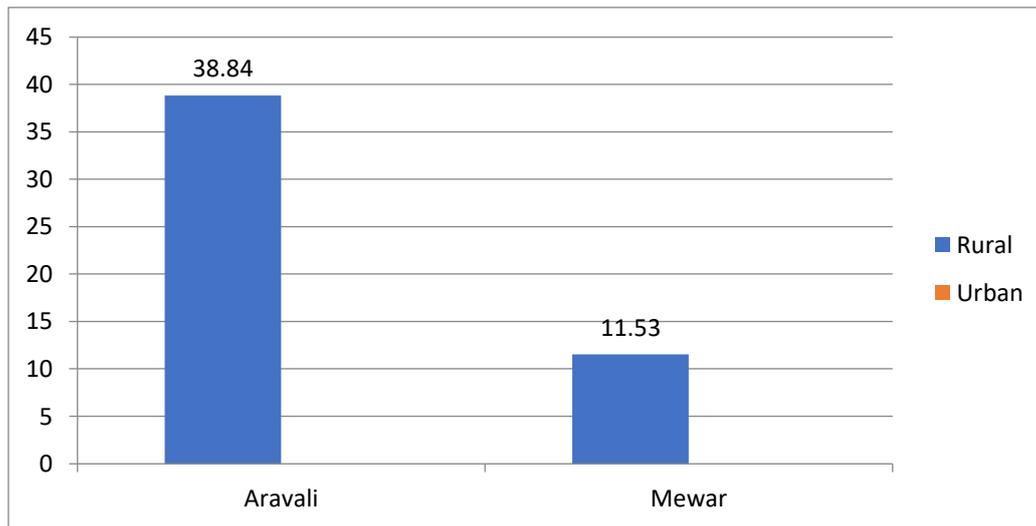


Graph is showing the percentage of pregnant women having different levels of Hemoglobin in Aravalli plains and Mewar hills.

### Weight Gain and Habitat Relationship

Nutritional survey among a large sample of pregnant women the percentage of gain in ideal weight is low on account of insufficient intake of calories. In rural area percentage of women with ideal weight gain was less (11.53) in Mewar area than Aravali zone(38.84) because in Mewar zone the rural women were less educated ,financially weak so they were not getting even sufficient food for themselves.

In both the zones the urban women were more conscious for their health science they are more educated, medical facilities were also available to them, so the percentage of women with normal weight gain was higher in urban women in comparison to the rural women in both the zones. It was observed that they were consuming protein rich food like milk and milk products, pulses, nuts, eggs etc.



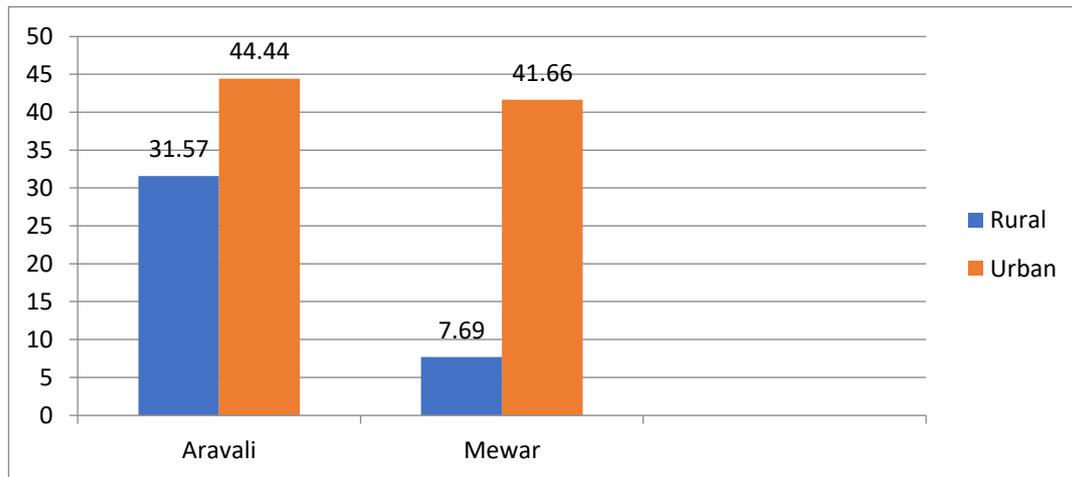
Graph is showing the percentage of pregnant women having normal weight gain in Arawalli plains and Mewar hills.

### Normal Calcium intake in Relation to Habitat

Calcium is the most abundant mineral in the body. Humans need calcium to build and maintain strong bones, and mostly of the body's calcium is in the bones and teeth. It is also necessary for maintaining healthy communication between the brain and other parts of the body. It plays a role in muscle movement and cardiovascular function. Calcium occurs naturally in many foods, and food manufacturers add it to certain products. Supplements are also available. Calcium helps regulate muscle contraction. When a nerve stimulates a muscle, the body releases calcium. The calcium helps the proteins in muscle carry out the work of contraction. lower risk of developing conditions involving high blood pressure during pregnancy

Calcium is one of the most important nutrient for the growth of foetus and if the mother has insufficient calcium she may suffer from Osteomalacia. The normal intake of calcium for a pregnant women is 1000 m. g.(I.C.M.R.,1998).

In the present study it was observed that in Aravali plains the percentage of women taking normal amount of calcium was 44.44 in urban women and 31.57 in rural women, whereas in Mewar Hills the percentage of women taking normal calcium was almost similar in urban area (41.66) but in rural area it was only 7.69 which is quite low because of lack of availability of nutritional counseling and these women were suffering from calcium deficiency diseases such as osteomalacia and osteoporosis but in urban area women were getting regular medical care ,nutritional supplements and they were also consuming protein, calcium rich diet like cheese ,milk ,egg, dry fruits, Yogurt, fortified dairy alternatives, such as soy milk, sardines and salmon, cheese, tofu, green leafy vegetables, such as broccoli, turnip leaves, watercress, and many fortified breakfast cereals, fortified fruit juices, nuts and seeds, especially almonds, sesame, and chia, legumes and grains, cornmeal and Some dark green vegetables, such as spinach, contain calcium. However, they also contain high levels of oxalic acid. Oxalic acid reduces the body's ability to absorb calcium.



Graph is showing the percentage of pregnant women having normal and below normal calcium in Aravalli plains and Mewar hills.

### Result

In the present study it is concluded that a number of factors influence in Mewar hills the women were having more proteins and fibre in their diet and they were more educated and aware for their nutrition and health. While in Aravalli they were consuming more processed and fast food. Although in both the zones normal weight gain and calcium intake was higher in urban than the rural areas because of lack of availability of medical facilities and awareness.

### Recommendations

The diet should contain adequate quantity of protein (65gms) during pregnancy. If women is vegetarian she should consume legumes, beans, nuts and soya products(tofu). Meat, poultry, fish, cheese eggs and milk are complete proteins (all nine amino acids components) but consuming too much protein can strain her kidney. Locally available fresh food should be consumed.

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