

# Nutritional Status and Birth Outcome of Mudukas Tribal Pregnant Women in Attappady Block, Kerala

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**Abstract:** *The health and nutritional problem groups of the vast tribal population of India are as varied as the tribal groups. Attappady is a tribal development block located on the eastern sloping plateau in the Western Ghats, in Mannarkadtaluk of Palakkad district of Kerala. It is a part of the Nilgiri Biosphere Reserve, which covers parts of the three states of Kerala, Tamil Nadu and Karnataka. The population of Attappady consists of tribes and non-tribes; the three tribes communities Kurumbas, Mudugas and Irulas. There are 192 hamlets known as 'oorus' in Attappady. Mudugas form the second largest tribal community in Attappady. There are 27 Muduga hamlets in Attappady. The women in the Attapadi are suffering from chronic malnutrition. They do not increase the dietary intake during gestations which have strong impact on birth outcome. The study was conducted among 50 mudukas tribal pregnant women during the study period of June 2017 to November 2017. The socioeconomic, dietary pattern, maternal nutritional status and neonatal details. By the results of survey showed that about 68 percent of women had miscarriage in their previous pregnancy and nearly half of them had low birth weight babies. About 40 percent had edema in their lower limbs, 14 percent experienced heartburn, four percent with preeclampsia and 18 percent suffering with constipation, and 48 percent had dental caries. The dietary pattern showed that 48 percent of the selected women consume fruits daily; only 68 percent of tribal pregnant women drink milk daily. About 58 percent of the selected women had the habit of consuming betel leaves. About 34 percent were underweight during the early days of pregnancy About 34 percent of women suffered from moderate anemia.*

**Keywords:** maternal food consumption, nutritional status and birth outcome of the newborns

## 1. Introduction

Attappady, the only tribal block Panchayath in Kerala, hit the headlines following a series of infant deaths caused by malnutrition. According to the latest figures available with the Integrated Tribal Development Project office at Agali, the headquarters of the block, 30 infants have died this year till May 31, while data shows that 52 have died over the past 18 months. (ITDP 2014)

Malnutrition and anemia are prevalent among the tribes in Attappady. "Almost all tribal women, including adolescent girls, are anemic, and it's acute among the pregnant and lactating mothers," (Dr. Prabhudas, 2015) tribes suffer from calorie as well as protein deficiency. There are at present 536 pregnant Adivasi women in Attappady, and 90 per cent of them are anemic and are facing serious health problems.

The women in the attapadi are suffering from chronic malnutrition. They do not increase the dietary intake during pregnancy. Nutritional assessment of pregnant women revealed that they ate white rice three times a day along with a curry. As per the health worker, the practice of eating less during pregnancy is seen among the tribal for easy delivery of the low birth weight baby. Supplementary nutrition through anganwadi is not received by these pregnant women (Eqbal et al. 2013). The maternal mortality rate is 700 per 100,000 compared with the Kerala state figure of 1.3 per cent. The infant mortality rate is 6600 per 100,000 against the state figure of 14.1 per cent (CommonWealth, 2013).

After many infant deaths were reported in 2013, the state health department conducted a mega health survey in April this year, screening 23,597 persons in Attappady. A total of 536 cases of malnutrition and anaemia were identified of

them 69 were severely malnourished while 463 were anemic. These 536 include children below six years, pregnant women, lactating mothers and adolescent girls. A mega medical camp found 536 of the 836 people from adivasis who participated in the camp suffered from malnutrition and anaemia 125 of them were children below five years.

The 2013 report of the National Institute of Nutrition puts the maternal malnutrition rate in Attapadi block at 48 percent. It is mainly due to lack of proper nutrition and teenage pregnancies (UNICEF, 2013).

## 2. Methodology

The study was carried out mudukas tribal community in Attapadii block of Mannarghattaluk in Palakkad district of Kerala. In recent times, tribes in Attapadi hills have acquired an important place in the state development agenda due to the recurrent infant deaths in the tribal hamlets of Attapadi block. Totally 50 mudukas tribal pregnant women (III trimester) during the study period of June 2017 to November 2017 were selected from Attapadi village for the study. Background information, obstetric history, Anthropometric measurements, Biochemical and clinical status were collected through a formulated questionnaire. Dietary pattern method was used to collect the details about dietary intake of the respondents which is useful to identify their food habits.

Questionnaire is consisting of questions related to the socio-economic background of the target groups. It includes family income, individual income, family size, educational level, marital status and occupation etc.

### **Obstetric History**

Related to these, the questionnaire comprises of the questions related past and present pregnancy status of the target groups were covered.

### **Anthropometric assessment**

Pregnancy outcomes related to maternal nutritional status have been measured by anthropometry. Numerous research projects have studied maternal anthropometric indicators as predictors of birth weight. However, fewer of them have focused on the question as to which is the best indicator for the prediction of pregnancy outcomes with greater sensitivity, specificity and accuracy (Ricalde, 1998). Anthropometric measurement including height, weight, mid upper arm circumference were measured and BMI was computed.

### **Biochemical Assessment**

Hemoglobin level of the selected pregnant women were noted from their recent check up card.

### **Clinical assessment**

Pregnant women's assessed clinically in general practice, and prematurity and birth weight of the child. This study has obvious weaknesses, based as it is on a small number of women and subjective criteria for psychosocial assessment. A clinical assessment based on integration of several sources of information depends on the clinician as a person and on the relationship between the woman and the physician. Ex: pallor, edema...

### **Dietary Habits**

The eating habits and nutritional status of future mothers have an important effect, only on the course of pregnancy and the development of the foetus, but also on the health of the children during subsequent years of the life. During dietary assessment 24 hours recall used to evaluate the dietary intake of the mothers.

## **3. Results and Discussion**

### **Background information**

The selected mudukas tribal women were in the age between 16 to 42 years. A majority of (88 percent) of them had education between 7 to 10th class. About 66 percent of the families had more than 4 members per family. Only 54 percent were working. About 26 percent women worked for 3-4 hours, whereas 28 percent worked for 5-6 hours. The monthly income of selected families (98 percent) was less than Rs. 3000. Pregnancy history showed that about 68 percent of women had miscarriage in their previous pregnancy and nearly half of them had low birth weight babies.

### **Anthropometric Measurement**

The mean height of selected tribal pregnant women ranged between 146 to 155 cm. The mean weight of selected tribal women ranged between 41 to 53.5 kg prior to pregnancy. Of the selected participants, 34 percent were underweight during the early days of pregnancy with a mean BMI of  $17.65 \pm 0.53$  whereas 66 percent of women were normal with a mean BMI of  $20.93 \pm 1.15$ . However, none of them were categorized under overweight and obesity.

### **Biochemical Assessment**

The biochemical assessment showed that the majority of the participants suffer from either mild or moderate degree of anemia. About 34 percent of women suffered from moderate anemia with mean value of  $9.18 \pm 0.49$  g/dl. About 32 percent were suffered from mild anemia with the mean value of  $10.39 \pm 0.289$  g/dl and the remaining 34 percent had normal hemoglobin level with the mean value of  $11.86 \pm 0.62$  g/dl.

### **Neonatal details**

It was observed that 82 percent of the newborn had normal birth weight with mean weight of  $2907.39 \pm 270.44$ , whereas 18 percent of the neonatal were found to be low birth weight with mean weight of  $2361.111 \pm 171.09$ . None of the babies observed to be very low birth weight and extremely low birth weight. Low birth weight (LBW) is one of the main predictors of infant mortality.

### **Smoking and Alcohol consumption**

From the present findings, it is clear that about 58 percent of the selected women had the habit of consuming betel leaves because they belongs to the tribal area and only 26 percent of them consume smokeless tobacco. It is surprised to note that smoking and alcohol consumption was not practiced by the selected tribal women.

### **Nutrient intake**

It is evident from the table that the mean calorie intake of the selected women was 1917 kcal which was 25.6 percent deficit on comparing with RDA (2580 kcal). This is attributed to the economic status of the family where they do not have enough amount of food source and the most of the people in Attappadi consumed rice for three times daily, inspite their diet was deficit in energy. Protein intake of the selected participants was 72.66g, which was 11.60 percent deficit. The maximum amount of protein in their diet was contributed from their daily intake of egg, yet it did not meet the total requirement necessary during pregnancy as the amount of inclusion of pulses seems to be negligible. This increases the risk of pregnancy as well fetus growth, resulted in delivery of malnourished infant. It is surprising to observe that the fat intake of selected tribal pregnant women was 24.77g against 30g (RDA). The quantity of fat in their diet was furnished by addition of coconut oil in their menu. Further, rarely they include other type of oils in their daily food preparation. The micro nutrient such as the mean iron intake of the selected women was 31.8 mg which was 9.18 percent deficit. In most of the selected participants it depends on green leafy vegetables intake than non-vegetarian foods.

## **4. Discussion**

The study was carried out Attappadi block of Palakkad district, Kerala. A total of 50 pregnant muduka tribal women were selected on their third trimester during the study period of June 2017 to November 2017. A questionnaire was formulated to gather information on general aspects. The mean calorie intake of the selected women was  $1917 \pm 381.02$  kcal which was 25.6 percent deficit on comparing with RDA. Protein intake of the selected participants was  $72.66 \pm 39.34$ g, which was 11.60 percent deficit. The fat intake of selected

tribal pregnant women was  $24.77 \pm 21.02$ g against 30g (RDA). The micro nutrient such as the mean iron intake of the selected women was  $31.8 \pm 12.23$  mg. The mean calcium intake was  $1220 \pm 329.44$  mg against 1200mg (RDA). The mean vitamin C intake was 47.4 mg which was 21 percent deficit. About 17 women was 34 percent who belonged to the category of underweight had weight gain ranged between 6-8 kg with a mean weight gain 6.97kg, whereas 33 women was 66 percent belonged to normal during pre pregnancy stage had body gain weight ranged between by 6-9 kg with a average weight gain of 7.66 kg. It was observed that 88 percent of the newborn had normal birth weight with mean weight of  $2907.39 \pm 270.44$ , whereas 18 percent of the neonatal were found to be low birth weight with mean weight of  $2361.111 \pm 171.09$

## 5. Conclusion

The findings of the study showed that higher percentage of the selected tribal women suffered from mild and moderate degree of anemia. About half of selected women were working during their pregnancy and more than half of the women already had miscarriage and LBW babies. The nutrient intake of the women was low, most of them faces deficit in their nutrient intake. Moreover below half of women were underweight before pregnancy. Moreover, none of the selected pregnant women gain weight as per the standard range which is resulted in the low birth weight (18 percent) of the new born.

## 6. Acknowledgement

I would like to thank Mrs. V. **Krishnaprabha**, Assistant professor, Dr.P.S.G College of Arts and Science, Coimbatore for guiding me to do the project. I would also like to thank **Dr. Jisha Johnson Abraham**, former medical officer CHC Agali, Palakkad and my loved ones **Salma, Alka baby, Priyanka and Reemaroy** for excellent support to do this project and grateful to all community people for their cooperation.

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