

**A study on Reproductive Health and Nutritional  
status of Ahom women of Assam**



**Executive summary**

**UGC-NERO Minor Research Project**

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## **Introduction:**

In India, the health status of woman is unsatisfactory as the Indian women have high mortality rates, particularly during childhood and in their reproductive age (Velkoff, A. V., 1998). It is estimated that 340,000 maternal deaths taken place in the world each year (Sarah *et.al.*2014). Developing countries account for 99% of the global maternal deaths, of which 85% deaths occur in Sub- Saharan Africa and Southern Asia of which India accounts 19% (WHO, 2012). National programmed for Maternal and Child Health have bought a steady but rather slow decline in Maternal Mortality Rate (MMR) as evident by MMR of 398 in 1997-98, MMR of 301 in 2001-03 and 200 in 2007-09. But the rate of MMR is much different in different region of India (SRS-2011). As per the Annual Health Survey, Assam 2011 (reference period 2007-2009), the maternal mortality rate is 381 with district wise variation from 342 in four district to 430 in five district. SRS data (2007-2009) of the region also reveals that the maternal mortality rate is 390, which is highest in the country.

In India, the median interval between births is 31 months. 11% of births take place within 18 months of the last birth, and 28% occur within 24 months (NFHS-III). Similarly more than half of the malnourished children in the developing world are found in South East Asia and 26 million babies are born with low birth weight because their mother are either ill fed or malnourished (UNICEF, 1993, 1996).

The NFHS-III estimates of infant mortality is 57 deaths per 1000 live births and still more than one in 18 children die within the first year of life and more than one in 13 dies before reaching age five years. Infant and child mortality rates are higher in rural areas. In 2001- 2005, the infant mortality rate was 50% higher in rural areas (62 deaths per 1000 births) than in urban areas (42 deaths per 1000 births). Children whose mother has no education are more (NFHS-III).

Anaemia is one of the major causes of the high MMR in India (WHO, 2010). India is among the countries with highest prevalence and accounts for the largest number of anaemic persons in the world. It is estimated that about 20.00% to 30.00% of maternal deaths in India are due to anaemia. India contributes to about 50.00% of global maternal deaths due to anaemia (Kumar, 2014). According to NFHS - 2005-2006 more than half of women (55.00 %) and almost one quarter of men (24.00 %) are anaemic, out of these 39.00% percent of women have mild anaemia, 15.00% have moderate anaemia, and 2.00% have severe anaemia. The survey further revealed that among the states, Assam is the worst affected with 72.00% of married women being anaemic, followed by Haryana (69.70%) and Jharkhand (68.40%). The prevalence of malaria in states like Assam was cited as one of the chief reasons for this (IIPS, 2006).

Body Mass Index (BMI) is the simplest acceptable tool for determining relative body fatness in both clinical and epidemiological studies (Prentice and Jebb, 2001; WHO, 2014). It is usually defines body fatness as an index of weight relative to height, and is generally considered a valid index of adiposity (Gundogdu, 2008). It is an established fact that BMI is a useful anthropometric indicator of measuring nutritional status of the population (FAO, 1996) and is specifically suitable for large scale surveys (Ulijaszek and Kerr, 1999; WHO, 1995). The prevalence of chronic energy deficiency (CED) measured through BMI is generally considered a good indicator of not only the nutritional status but also the poor demographic, socio-economic and environmental conditions of the population, especially adult population of developing countries (Ferro-Luzzi *et. al.*, 1992; Shetty and James, 1994; Nube *et. al.*, 1998; Khongsidier, 2002; Mosha, 2003; Pryer and Rogers, 2006; Subramaniam and Smith, 2006). A BMI  $<18.5$  kg/m<sup>2</sup> is widely used as a practical measure of chronic energy or hunger deficiency (CED), *i.e.* a “steady” underweight (Khongsidier, 2005). Such a “steady” underweight or chronic under-

nutrition reduces physical capacity (James *et. al.*, 1994), increases mortality (Harris *et. al.*, 1993) and morbidity (Khongsdier, 2002).

A women with poor nutritional status, as indicated by a low Body Mass Index, short stature, anaemia or other micro nutrition efficiencies has a great risk of obstructed labour, having a baby with low birth weight, adverse pregnancy outcome producing lower quality breast milk, death due to postpartum and illness for herself and her baby. In India more than one-third (36%) of women age 15-49 in India have a BMI below 18.5, including 16 % who are moderately to severely thin (NFHS-III).

Obesity, the other side of poor nutrition, is one of the most important health problems in the world and its prevalence is increasing rapidly in all ages all over the world (Flores-Huerta *et. al.*, 2009; Klein *et al.*, 2002; Nesbitt *et. al.*, 2004). A BMI  $25 \text{ kg/m}^2 >$  is defined as overweight, and a BMI of  $30 \text{ kg/m}^2 >$  as obese. These markers provide common benchmarks for assessment, but the risks of disease in all populations can increase progressively from lower BMI levels (WHO, 2002).

Research on obesity in India has found the prevalence of obesity to be higher among women (Gopinath *et.al*, 1994; Zargar *et.al.*, 2000; Sinha and Kapoor, 2000) and among economically better off persons (Dhurandhar and Kulkarni, 1992; Singh *et.al.*, 2000; Griffiths and Bentley, 2001). National Family Health Survey-II & III of India shows that the prevalence of both overweight and obesity increases in each age group from 15 years of age to 49 years. According to National Family Health Survey-III, the prevalence of overweight and obesity among Indian females as estimated from 15 years to 49 years of age were 12.6% and 2.8% respectively.

**Problem:** Assam is a state of the North Eastern region of India with multi ethnic populations. In comparison to the population composition of North East India, the health facility is very limited in this region. Geographically North East India is situated in a remote area, maximum people not well educated, as a result of which they are not conscious about their health. Different cultural norms as well as occupational pattern also play a vital role in the health condition of the people. Though government of India as well as government of concern states initiated different programmes for the development of medical facility as well as health status of the people of this region but still unable to cover at desired level for different factors.

It is also noted that the study on health status of the people of this region is very limited. Although, till date NFHS had studied about the health status of women in all over India in four phases covering different aspects, however community specific similar study is scanty. In the present study an attempt has been made to assess the health status of Ahom women; a Tai Mongoloid population who are mostly concentrated in different district of upper Assam. Health status is determined on the basis of reproductive health, nutritional status through anthropometric indices, haemoglobin concentration, history of morbidity *etc.*

### **Objectives of the study:**

The present study was carried out with the following objectives in mind-

- i. To describe the demographic structure and assess the health and nutritional status of the Ahom women using demographic patterns on fertility, mortality, and self reported morbidity.
- ii. To asses maternal and child health and nutritional status using nutritional anthropometry among the Ahom women of Assam.

- iii. To understand the relationship between various bio-social factors on body dimensions, blood pressure and haemoglobin content among the Ahom women.

### **The people:**

AHOM: The Ahom were originally a Tai-speaking people, who migrated to Assam from their original country on the upper courses of Irrawaddy River in Myanmar (Burma) crossing the Patkai range in the early part of the 13<sup>th</sup> century (1228 A.D). They spoke the Tai language, which belong to the Siamese-Chinese branch of the Sino-Tibetan family until the end of their rule (1826 A.D) especially on religious occasions. Even today, in religious rituals, they used Tai language.

At present, the Ahom mostly inhabits in the Brahmaputra valley and are mainly concentrated in the districts of upper Assam (Dibrugarh, Tinsukia, Sibsagar, Jorhat, Lakhimpur Dhemaji *etc.*) covering both the banks of the Brahmaputra River.

The Ahoms became Hinduised by the seventeenth century and at present many Ahom follows Hindu religious practices. They have gradually abandoned their original Tai language in favour of Assamese and at present only the priests use the Tai language for traditional religious purposes. The State Government lists them as O.B.C. (Other Backward Class).

### **Material and methods:**

The data for the present study entitled *A study on Reproductive Health and Nutritional status of Ahom women of Assam* was collected from different places of the Assam at different interval. A total of 336 ever married Ahom women were included for data collection.

Door to door survey was conducted for collection of entire data. For demographic data a specially designed schedule was prepared and collected data by in-depth interview with the

informants. For the information of reproductive health women are interviewed by a lady investigator for convenient and maintaining the privacy of the subjects. Pregnancy history of each married women was recorded taking into consideration total number of pregnancies and approximate age at each conception, outcome of each pregnancy (miscarriage, stillbirth and live birth), sex of each offspring, multiple births, place of delivery, type of delivery, number of surviving children and their age and sex, *etc.* It is very difficult to find out the actual age of the subject in rural areas so under such circumstances, age was estimated with reference to some important local and also discuss with other elderly persons.

The self reported morbidity data was collected by interview with women and other members of the household and recorded all the illness suffered in the one year from the date of interview. The type of illness is categories into two types- acute illness; only present for some days like –diarrhea / dysentery, all types of fever and also any types of acute illness, and chronic illness- that are based on symptoms pertaining to a particular illness persisting for more than one months and also in respect of illness where it was diagnosed.

In all the interviews involved indirect and non formal communication with the other members of the family.

The anthropometric traits *viz.* height, weight, forearm circumference, upper arm circumference, bicep skin fold, triceps skin fold, forearm skin fold and abdomen skin fold are measured with standard anthropometric methods (Sing and Bhasin, 2004). Height was measured with Anthropometer and weight was measured with weighting machine. The skin folds of bicep, triceps, forearm and abdomen were measured with skin fold caliper. Circumferences of the upper arm and fore arm were measured with tape.

The Body Mass Index (weight in k.g. divided by height in meter squared) was calculated with height and weight and categorized as the <16.00 as underweight grade – III; 16.0 – 16.99 as underweight grade II and 17.0 -18.49 as underweight grade-I. Further, BMI ranges from 18.50 - 24.99 consider as normal. In case of overweight, BMI ranges from 25.0 - 29.99 overweight grade-I, and 30.0 - 39.99, and 40.0> are consider as overweight grade-II, and overweight grade-III respectively and also obese (30.0>) (WHO, 1995; 2000; 2005).

Haemoglobin concentration was tested with haemoglobin colour scale method recommended by WHO and the severity of anaemia is classified according to the classification of WHO (2011) *i.e.* Hb < 7g/dl: Severe anaemia, Hb 7 - 9.99 g/dl: Moderate anaemia, Hb 10 - 11.99g/dl: Mild anaemia and Hb >12 g/dl: Non- anaemic.

The blood pressure and pulse rate of the women are measured with automatic blood pressure monitor and classified according to JNC- 7 as in systolic blood pressure <120 as normal, 120- 139 as pre hypertension, 140- 159 as hypertension stage I, 160> as hypertension stage II. In diastolic blood pressure <80 consider as normal, 80-89 as pre hypertension, 90- 99 as hypertension stage I and 100> as hypertension stage II. The pulse rate 60- 100 is consider as normal, below 60 is consider as slow heart rate and above 100 is consider as high heart rate.

The statistical analyses of the data were done with the Microsoft Excel 2007. The data are presented by simple percentage, average, standard deviation, standard error, *t*- test *etc.* Diagram and graphs are used to give an overall view of the entire mass of statistical data that have been collected from the Ahom women.

## **Results and findings:**

### **Demographic characteristics:**

The sample of the present study consists of 336 Ahom women. Their age group ranges from 16 - 61+ years. Among them it is seen that highest percentage (16.07%) is found in age group 36 – 40 years of age. On the other hand, the lowest percentage (2.98%) is found in the age group of 15 – 20 years. There are 4.76% of women belongs to the age above 60 years.

The maternal status of the women of the present study shows that highest percentage of women belongs to the mother category (65.18%), followed by lactating (30.06%), currently married (2.38%), pregnant (1.49%) and no child (0.89%). No child category consists with the women which have cross their reproductive age without experience of child birth. Among them 55.95% women are belongs to nuclear family and 44.05% are belongs to joint family and 96.13% women are engaged with their different day to day household activities. Only 3.87% women are engaged in government service.

The educational status of the Ahom women of the studied population reveals that 13.99% of them are illiterate and 6.55% are studied up to class V. It is seen that highest percentage (26.19%) of them are studied up to class VI –X followed by H.S. level (24.70%), H.S.L.C. (19.05%), Graduate (8.33%) and Post Graduate (1.19%).

It is seen that maximum (43.45%) Ahom women of the present study is belongs to good family economic background. There are 20.54% of women they are belongs to poor family economic condition and 36.01% are belongs to moderate family economic condition.

Menarche is an important milestone in the development of female adolescent unlike other pubertal changes that are gradual and continuous, menarche is a distinct event with a sudden and

dramatic outset. It is considered a distinct benchmark for sexual maturation. The age at menarche is different in different population. The present study reveals that the age at menarche is start at age of 8 years and completed in the age of 15 years. The mean age of menarche among them is  $12.07 \pm 0.06$ . Maximum women (43.75%) of the present study experience their menarche in the age of 12 years.

The age at marriage among the Ahom women of studied population reveals that the early age of marriage is high among the Ahom women of Assam. There are 53.27% women who are got married in the age between 16-20 years of age and 13.99% of women are got married in the age between 11-15 years. Only a small section (26-30 years= 4.46%, 31-35 years= 0.89%) of Ahom women are crossing 25 years of age in their age at marriage.

The age of conception has a vital role in the reproductive health of the mother. It is vulnerable to the women to conceive in very early age as well as in higher age. It is very important that among the Ahom women of the present study that more than 50% of them are conceive for the first time in the age below 20 years of age. But conception in higher age is low. There are 7.44% women in 26-30 years of age, 1.19 in 31-35 years of age and 0.3% women in age group 35-40 years of age has first experience of conception.

The age at first child birth among the Ahom women is depicting that the first child birth in teen age is very high among the Ahom women of Assam. There are more than 50% of women who has experience of first child birth below 20 years of age. It is very remarkable that 2.98% of women are given birth their first child below 15 years which is very sensitive to the mother as well child. In case of over age it is seen that 1.19% of women in 31-35 years of age and 0.3% in 36-40 years of age are found. There are 4.46% of women who has no experience of child birth.

The menopause is a biological process which indicates the end of reproductive cycle among the women. The age of menopause is varying from population to population. The mean age at menopause among the Ahom women of the present study is  $42.74 \pm 0.34$  years. It ranges from 30 to 52 years of age among them. It is found that maximum Ahom women (12.8%) have experience of menopause in 43 years of age.

The number of pregnancy among the Ahom women of the present study shows that maximum (33.33%) of women have experience of pregnancy for two times. The average number of pregnancy per mother among them is  $2.61 \pm 0.09$ . Likewise the average number of live birth per mother is  $2.29 \pm 1.60$ .

The rate of still birth is one of the most important indicators of the reproductive health of the women. It is found that the average still birth is  $0.07 \pm 0.02$  among the Ahom women of the present study. 95.23% of women have no experience of still birth. There are 4.47% of women have experience of still birth for one time, 0.3% have experience for 2 times and 0.3% have experience for 6 times.

In case of miscarriage the average prevalence of miscarriage among the Ahom women of the present study is  $0.10 \pm 0.02$ . 2.38% of Ahom women have experience of miscarriage for 2 times and 5.06% have experience for one time. It is seen that 92.56% of women have no experience of miscarriage. Among them 5.06% have practice induce abortion for one time followed by 2.38% for 2 times, 0.89% for 3 times and 0.3% of them for 5 times.

### **Bio social factors and Reproductive performance:**

The reproductive performance of the Ahom women according to the age at menarche of the present study shows that the record of average conception (4.62), live birth (3.00),

miscarriage (0.25) and stillbirth (0.75) all are higher among the women who attend the menarche in age 15 years. In case of miscarriage it is found that the rate of miscarriage is low in lower age in comparison to the higher age. In still birth there is no record of still birth in 8 and 9 years of age.

The reproductive performance by age at marriage of the mother indicates that the highest conception (3.62) is found among the women who are getting married in 11- 15 years of age followed by 16 - 20 years (2.74), 31 – 35 (2.33), 21 – 25 (1.99) and 26-30 (1.67). Likewise the average live birth is also shows the same trend. Highest rate of live birth (3.43) is found in age group 11- 15 and it is declining up to age group 26 – 30. In case of miscarriage the rate of miscarriage is increase with the increase of age of the women. But the rate of still birth is decreased with the increase of age of the women.

The reproductive performance of Ahom women according to their family economic of the present study indicates that the rate of conception, live birth and miscarriage are higher among the women with poor family economy. Among the women of poor family economy mean conception is 3.42 where as among the moderate it is 2.68 and in good it is 2.16. In case of live birth it shows the same trend. Among the women of poor economic condition the average live birth is 2.86 followed by 2.39 in moderate and 1.39 in good economic condition. The average miscarriage is 0.13 in poor and 0.09 in moderate and good economy.

The reproductive performance according to the educational level of the mothers seen that the education and the reproductive performance has a good relation. It observed that with the increase of mother's education the rate of conception and live birth is declined up to Graduate

level. The highest conception (4.68), live birth (4.23) and still birth (0.17) are found in illiterate category and highest miscarriage is found in H. S. pass and illiterate category.

The reproductive performance of the Ahom women according to their family type shows that the mean conception (2.75) and live birth (2.49) is higher among the women who are live in joint family but miscarriage and still birth is low among them.

### **Self reported morbidity and Anthropometry:**

Health is a state of complete physical, mental and social wellbeing (WHO, 1984). Good health corresponds to dynamic stability, normal function and homeostatic control. Ill health corresponds to a state of instability, loss of function and failure of self regulation. On the other hand human disease has been defined in the forms such as sickness, illness and morbidity (Fasu, 1981). The status of health is not only depending on a particular aspect but of the overall integrated development of socio-cultural status, economic status, environmental condition, educational status *etc*

The distribution of acute illness among the Ahom women of the present study seen that 73.21% of women are suffered from different acute illness. Among different acute illnesses fever is highly prevalent as 52.98% of women are suffered from fever. Among them seasonal cough (32.14%), headache (15.18%), diarrhea (8.33%) is also remarkable. Along with these stomach pain (1.19%), body pain (1.49%), back pain (2.08%), tooth pain (0.3%), typhoid (1.49%), jaundice (0.6%), kidney stone (0.6%), skin allergy (0.3%), malaria (0.3%), urine infection (0.89%), pneumonia (0.6%) and other (1.97%).

The prevalence of chronic illness among the Ahom women of the present study reveals that 77.8% of women are suffered from different chronic illness. Gastric is one of the highly

prevalent chronic illnesses among them as 37.5% of Ahom women are suffering from gastric. After gastric body pain (14.29%) is highly prevalent illness of the different illness among them. There are 6.25% women are suffering from asthma and 4.76% are suffering from cough for a long time. 3.87% of them are suffering from different gynecological problems.

The statistical representation of the anthropometric traits of Ahom women shows that the mean height of the Ahom is  $150.93 \pm 0.60$  c.m. and weight is  $54.11 \pm 0.53$  kg. The measurements of circumference shows that mean forearm circumference is  $23.61 \pm 0.17$  cm. and upper arm circumference is  $25.41 \pm 0.21$  cm. The abdominal skin fold of the Ahom women is  $20.02 \pm 0.53$  mm. The skin fold of forearm, triceps and bicep are  $16.29 \pm 0.25$  mm,  $16.29 \pm 0.37$  mm and  $10.63 \pm 0.29$  mm respectively.

The average BMI among the Ahom women of present study is  $23.84 \pm 0.27$ . The prevalence of BMI shows that 58.82 % of Ahom women are under in normal category. In the underweight category it is seen that there are 6.25% of Ahom women belong to the category of underweight grade –I followed by 2.38% in underweight grade II and 0.89% are in underweight grade III. In the category of overweight there are 19.35% women are in the overweight grade I and in the obese category there are 8.04% in overweight Grade II and 1.79% are belongs to the overweight category III.

The distribution of anthropometric traits and acute illness shows that except the forearm skin fold in all traits the mean values are higher among the women who are not suffering from any acute illness. The mean BMI is slightly below among the women who are not suffering from acute illness ( $23.85 \pm 5.07$ ) than the women who are suffering from illness ( $23.85 \pm 5.07$ ). But in all traits there is no statistically significant difference is found.

The distribution of anthropometric traits and chronic illness observe that mean height ( $151.39\pm 0.50$ ) and abdominal skin fold ( $20.64\pm 0.57$ ) are higher among the chronically ill woman than the height ( $150.69\pm 0.99$ ) and abdominal skin fold ( $17.87\pm 1.05$ ) of women who are not affected by any chronic illness. In other traits the mean values are higher among the women who are not suffer from any acute illness than the women who are suffer from different chronic illness. The BMI is also higher among the without chronic illness women. In all the traits there is no statistically significant variation is seen.

The distribution of Ahom women according to the BMI and acute illness shows that there are 61.73% women are found in normal category in case of women with different acute illness whereas 57.95% women are found in normal category among the women without any acute illness. Among the acute ill women the percentage of underweight is higher (6.58% in grade- I, 2.06% grade- II and 1.23% grade -III) in comparison to the women who are not suffering from any acute illness (grade I = 5.68%, grade- II = 3.41%) . In case of overweight maximum women (32.95%) are found in not affected with any acute illness women then the women with different acute illness (28.40%). But in case of obese maximum women are found in ill category (10.29%).

In case of BMI according to the chronic illness shows that the percentage underweight is higher in case of chronically ill women (11.37%) in comparison to the women with no chronic illness (3.95%). But in case of overweight it is opposite. There are 27.07% of women are found in ill category whereas 38.16% of overweight women are found with no any chronic illness. In case of obesity there are 17.11% women found with no any chronic illness and 7.85% are found with different chronic illness.

The distribution of Ahom women according to their education level and acute illness shows that in illiterate (15.56%), I-V (7.78%), VI- X (33.33%) and Graduate (11.11%), category the percentage of women with no acute illness are higher in comparison to the women who are suffering from different acute illness. The highest ill women (27.24%) are found in HS pass category and lowest is found in women in Post Graduate level.

The distribution of chronic illness and educational status of the Ahom women shows that the prevalence of chronic illness is higher among the women with education level I –V (8.11%), VI – X (27.41%), Graduate (8.49%) and illiterate (16.60%). The highest prevalence of chronic illness is found among the women with education level VI- X (27.41%) and lowest is found in the category of Post Graduate level.

The distribution of family economy and acute illness shows that the highest prevalence of acute illness (45.53%) is found among the women with good family economy background. It is seen that in moderate (36.18%) and good family (45.53%) economy background the prevalence of acute illness is higher. The lowest ill women (18.29%) are found in poor economy category.

The distribution of chronic illness and family economy of the women reveals that highest ill women (40.93%) are found in the moderate family economy category and lowest is found in poor economic category. In poor and moderate economic category women with chronic illness are higher in comparison to the women without any chronic illness.

### **Haemoglobin, Blood pressure and pulse rate:**

Anaemia is one of the major health problems in all over the world. It is not only found in a particular age or sex. It is depicted from the present study that the prevalence of anaemia is very high among the Ahom women of Assam. Only 22.61% of Ahom women are found in the

normal category. There are 55.35% of women are with mild anaemia followed by 21.13% are with moderate anaemia and 0.59% are with severe anaemia. It is seen that the severe (0.68%) and moderate (21.62%) anaemia is higher among the women who are live in joint family. But the mild anaemia is higher among the women of nuclear family (56.91%). The highest non anemic women (23.65%) are found in joint family. In relation to education it is seen that in non anaemic category maximum women (8.04%) are found in HS Pass category. In mild anaemic (17.26%) and moderate (6.25%) anaemic category the highest women are found in education level VI- X.

The distribution of Ahom women according to the haemoglobin concentration and family economy shows that in non anaemic category maximum women (32.19%) are found in good family economy. In mild (60.87%) and moderate (30.43%) anaemic category poor Ahom women are highly affected.

The distribution of haemoglobin concentration and acute illness shows that in the non anaemic category the percentage of women with acute illness is higher. It is seen that there are 24.39% women are found with acute illness whereas 17.78% women are found without any acute illness. In the mild anaemic category the prevalence of anaemia is higher (62.22%) among the women without any acute illness.

The distribution of haemoglobin concentration in relation to the chronic illness shows that the prevalence of anaemia is higher among the women with chronic illness. There are 25.47% of non anaemic women who are found with no any chronic illness. Whereas among the chronically ill women it is 19.69%. The prevalence of anaemia among the ill women are 59.07% with mild anaemia and 21.24% are with moderate anaemia.

The relation of haemoglobin concentration and BMI among the Ahom women of the present study shows that maximum women (32.93%) with normal BMI are found in the mild anaemic category and in other categories of haemoglobin with normal BMI are 0.60% in severe anaemic, 13.29% in moderate anaemic. There are 13.90% of women who are non anaemic and normal BMI. In non anaemic category there is 0.30% women are found in grade II underweight, 0.60% are found in underweight grade I and 4.53% are in grade I overweight, 3.32% are in overweight grade II and in 0.60% in overweight grade III.

The distribution of systolic blood pressure among the Ahom women of the present study reveals that the systolic is high among the Ahom women of Assam where only 56.25% women are normal. There are 30.65% of women are found in pre hypertension category. In the hypertension stage I there are 11.31% and in the hypertension stage II there are 1.79% of women are found. The mean systolic blood pressure among the Ahom women is  $120.44 \pm 0.87$ .

The relation of systolic blood pressure and acute illness shows that the prevalence of hypertension is higher among the women who are not affected by any acute illness. There are 46.67% in pre hypertension category, 10.00% in hypertension grade I and 1.11% in hypertension category III among the women who are not affected by any acute illness. Whereas there are 30.08% are in pre hypertension category, 11.79% in hypertension stage I and 2.03% in hypertension stage III among the women who are affected by different acute illness.

The distribution of systolic blood pressure and chronic illness indicates that the prevalence of hyper tension is higher among the women who are chronically ill. There are 35.91% in pre hyper tension category, 11.58% in hypertension stage I and 1.93% in hypertension stage II among the chronically ill women. Among the women who are not affected by chronic

illness it is seen that 29.87% found in pre hypertension category followed by 9.09% in hypertension stage I and 2.60 % in hypertension stage II.

The distribution of systolic blood pressure and haemoglobin concentration reveals that maximum normal systolic blood pressure women are found with mild anaemic. There are only 10.12% of women who are found with normal haemoglobin as well as normal systolic blood pressure. Among the Ahom women maximum hypertensive women are found in mild anaemic category. There are 16.67% women found in pre hypertension category, 5.36% are in hypertension stage I and 0.59 in hypertension stage II among the mild anaemic women.

The distribution of systolic blood pressure and BMI shows that there are 41.53% of Ahom women who are normal according to BMI as well as systolic blood pressure. In the normal category there are 17.75% women are found in pre hypertension category, followed by 4.47% are found in hypertension stage I and 0.64% are found in hypertension stage II. It is also seen that in the entire overweight category the prevalence of hypertension is higher in comparison to the underweight categories.

The distribution of diastolic blood pressure shows that 63.39% of Ahom women are found in the normal category. There are 21.73% of women are belongs to the pre hypertension category followed by 13.39% in hypertension stage I and 1.49% in hypertension stage II.

The distribution of diastolic blood pressure and acute illness among the Ahom women of present study reveals that the prevalence of diastolic blood pressure is higher among the women who are suffered from different illness. Among them 22.76% of women are found in pre hypertension category, 13.01% are in hypertension stage I and 20.3% are in hypertension stage

II. Among the women with on any acute illness shows that 18.89% are found in pre hypertension stage and 14.44% are found in hypertension stage I.

The distribution of diastolic blood pressure and chronic illness shows that the prevalence of hypertension is higher among the women who are not affected by any chronic illness. Among them 28.57% are found in pre hypertension category, 5.19% in hypertension stage I and 7.79% are in hypertension stage II. Among the chronically ill women 19.69% are found in pre hypertension stage, 14.29% in hypertension stage I and 1.16% in hypertension stage II.

The haemoglobin concentration and chronic illness shows that 12.80 % of women are non anaemic as well as normal according to diastolic blood pressure. There are 5.36% of women are found in pre hypertension category, 3.57% are in hypertension stage I and 0.89% hypertension stage II among the non anaemic women. In mild anaemic category 37.20% women are found in normal diastolic blood pressure, followed by 11.31% in pre hypertension category, 6.55% in hypertension stage I and 0.60% in hyper tension stage II.

The distribution of diastolic blood pressure and BMI shows that 42.90% of women are found with normal BMI as well as diastolic blood pressure. It is seen that the prevalence of diastolic blood pressure is higher among the women who are overweight as well obesity. In the pre hypertension category there are 5.74% women are found with overweight grade I, 2.72% with overweight grade II and 1.21% are overweight grade III. Likewise in hyper tension stage 5.14%, 1.51% and 0.30% are found with overweight Grade- I, Grade II and Grade III respectively. In hypertension stage III 0.30% are grade I and 0.30% are grade II overweight.

The pulse rate of the Ahom women shows that 88.09% of the women are belongs to the normal category. There are 8.04% of women are found with low pulse rate and 3.87% are found with higher pulse rate.

The pulse rate and acute illness among the Ahom women of the present study shows that among the women with acute illness it is seen that there are 8.13% are found in below pulse rate, 88.21% are found in normal pulse rate and 3.66% are found in high pulse rate category. On the other hand among the women with no acute illness it is seen that there are 7.78% women are in below pulse rate, 87.78% in normal pulse rate and 4.44% in high pulse rate.

The distribution of pulse rate and chronic illness shows that the prevalence of low pulse rate is higher among the women with different chronic illness and in high pulse rate it is higher among the women with no any chronic illness. There are 86.49% of women are found with normal pulse rate among the women with different chronic illness and 93.51% are found with normal pulse rate among the women with no any acute illness.

The distribution of pulse rate and haemoglobin concentration shows that in normal pulse rate category 20.24% women are non anaemic, 49.11% are mild anaemic and 18.15% are moderate anaemic and 0.60% are severely anaemic. In the below pulse rate category there are 0.60% women are non anaemic, 5.36% are mild anaemic, 2.08% are moderate anaemic and in high pulse rate category 1.79% are non anaemic, 1.19% are mild anaemic and 0.90% are moderately anaemic.

The distribution of pulse rate and BMI shows that the prevalence of normal pulse rate is higher among the overweight women. Among them 18.73% are grade I overweight, 6.95% are grade II overweight and 1.81% are grade III overweight. Whereas among the underweight it is

4.53% in grade I, 2.11% in grade II and 0.90 in grade III. Among the higher pulse rate category no underweight are found and in overweight it is 0.60 in both grade I and grade II. In below pulse rate category 1.81% is found in grade I underweight and 0.30% is found in grade II and in overweight it is 0.30% in overweight grade I and grade II.

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