CHAPTER VII

SUMMARY AND CONCLUSION
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Morigaon district is located in the mid-part of the State Assam. The unique feature of the Morigaon district is that it is constituted by the combination of hills and plains. It is situated between 26° 15' N and 26°50' N latitude and 92° E and 92°50' E longitude. The district has a total area of 170400 hectares, out of which 17626 (10.34%) hectares are covered by forest land.

According to 2001 census, the total population of the district stood at 775874 accounting for 2.91% of the total population of Assam and its area was 1587.7 square kilometre accounting for 2.02 percent of the total area of Assam. The sex ratio of the district is higher (945 females per thousand males) as compared to state average of 923 females per thousand males (census, 2001).

Literacy is one the most important parameters of a population. According to 2001 census, the district had 375465 literates accounting for 58.53 percent of the total population as against 63.25 percent of Assam and 65.49 percent for the nation as a whole.

The district is connected with the rest of the state via roads, railways and waterways. Roads are the major mode of communication of the district. National Highway 37 is the lifeline of the district. Morigaon
district is connected with meter gauze as well as broad gauze line of railway also.

The Brahmaputra is the main river which flows along the extensive northern boundary and all the drainage of the district ultimately find their ways into it. The main tributaries of the river Brahmaputra are the Kollong, Kapilee, Sonai and Pakaria. As this basin is situated at a lower level it is subjected to frequent flood havocs and damages. Very high floods occurred in this basin in the years 1931, 1934, 1946, 1948, 1949, 1959, 1962, 1983, 1985, 1988, 1993, 1996, 1999, 2002 and 2004.

The Tiwa (originally known as Lalung) is one of the scheduled tribes of Assam and have settled mainly in Morigaon and Nagaon district. Some are found in Amri area of Karbi Anglong district, south eastern part of Kamrup, and eastern part of North Lakhimpur also. One division of the Tiwas living in hills is called the Hills Tiwas.

The Tiwas belong to Mongoloid featured Tibeto-Burman speaking Bodo sub group. According to Sharma Thakur (1972-90), the Tiwas entered Assam through the north-eastern hilly tract from their original habitat, the Tibetan Plateau. According to them originally there were two races “Dev” and Daitya’ and they are descendants of the Daitya race (Sen : 1999).
The Tiwa festivals are mostly related to religion. They consider Wednesday and Friday as auspicious days to perform any festival. Lord "Mahadeva" is their benevolent God. Their important festivals are ‘Malo Puja’, ‘Bison kunuwari puja,’ ‘Thal puja’ ‘Sani puja’, ‘Jankan puja’ etc. They have fairs (mela) locally known as ‘Gobha Raja’s mela’, ‘Jonbeel Mela’ etc. In ‘Jonbeel Mela’, the hill people exchange some goods or vegetables with plain inhabitants. The barter system is still prevalent in the district. In the month of January, they celebrate ‘Jonbeel mela’ for three days.

Generally the Tiwa families of the same clan live together. There is a dormitory system also among the Tiwas. The youth dormitory is known as ‘Chamadi’. Disputes are settled by the village head man. Still the Tiwas have a king. The king resides in a village called Na-khola, Guva, near Jagiroad.

The Tiwa clans are exogamous. They practice monogamy and cross – cousin marriage. Marriage between a Tiwa and Karbi is allowed. The marriage system resembles those of Hindus, but they do not perform ‘Hom’ i.e. lighting of sacred fire as an offering to God.

The Tiwas cremate the dead bodies; however the Christian Tiwas bury the dead. They perform the final purificatory mortuary rite called ‘Karam’ whenever it is possible.
It is found in the study area that less priority is given to the sectors like water supply, household sanitation, hygiene based behaviour patterns, sanitation in public places such as school, restaurant, hospital, health sub-center etc. Safe drinking water, facilities for the sanitary disposal of excreta are also found to be poor. It is seen that 45.5% families use tube well water for drinking purpose, 22.5% of families collect their drinking water from nearby stream; 18% families have kacha well. Only 9.5% families use drinking water from pucca well, 4.5% families collect their drinking water from nearby ponds, many of which are polluted by water hyacinth.

Most of the villagers i.e. 50% use drinking water without boiling or filtering, 22.5% families use filtered drinking water and 22.5% families use boiled water for drinking purposes.

Sanitation facility is poor in the study area. They are not aware about the hygiene and sanitation. In the study area, it is found that only 13.25% families have sanitary latrines and 54.25% families have Kacha latrines with unhygienic surrounding. 32.5% families use open field, hillside, agricultural land and back side of the house for nature’s call which increase the risk of spreading diseases.

Four major water related diseases are found among the Tiwa children of present study. Water borne diseases such as diarrhoea and
Dynestery are frequently found, 10.81% of children of the age group of 1-4 years and 12.5% children of the age group of 5-14 years have suffered from diarrhoea and dysentery.

Water based disease caused by aquatic organism like thread worm, round worm liver fluke are also found among the children. In 1-4 years age group 8.83% and 5.14 years age group 8.83% children are infected.

Water related vector disease like malaria, dengue etc. are caused through insects like mosquitoes. Malaria was seen in a relatively low percentage. 1.16% and 0.89% are the malaria affected children and they belong to age group 1-4 years and 5-14 years respectively.

Climate and environment within and around habitation are important determinants of individual health. In the study area 14.5% villagers have pucca house for habitation; 20.5% houses are with pucca floor and C.I. sheet roof; 37.25% live in mud floor and thatch roof houses. 63.25% villagers use smoke filled ‘chula’; 22.25% villagers use coal filled ‘chula’ and kerosene stove and only 14.5% villagers use LPG cooking gas for cooking.

To analyze the economic condition of the villagers, sizes and classes of families and occupational patterns have been studied, 47.75% families are medium size with 4-6 members, 33.25% families are big size with 7-9 member and 8.75% families are very big size consisting of 10-14
members. When the occupational patterns of the fathers are related with the diseased children, it is found that the teachers have 2.56% diseased children, clerks have 2.91%, chowkiders have 3.79%, daily labours have 11.67%, cultivators have 13.79%, thela puller have 17.25%, agricultural labours have 18.56% and rikswa puller have the highest i.e. 22.90% of diseased children.

The females are hard working and are busy with collecting and selling fire wood; rearing pigs, cows, fowls; weaving etc. The females are expert in making country liquor also.

According to international guidelines developed by WHO (Ashworth et al.: 2007), education is an important step for improving child health as well as community health. The educational status of the Tiwas are not poor. The literary percentage is 72.24%, but 56.24% studied up to L.P. level only. The percentage illiterate parents is found as 27.76%.

It is worth mentioning that infants upto six months of age are found to be completely breast fed. After six months they are given additional food besides breast milk. When the infants are capable of kneeling and crawling they start dirty habits of putting dirty things to the mouth from the floor. The highest percentage (20.56%) of infants have suffered from common cough, 11.22% from fever, 10.28% from measles,
3.34% from dysentery and diarrhoea, 7.01% from skin diseases, 6.54% from flu, 4.67% from asthma, 0.93% from unknown disease.

Regarding oral health, tooth decay, gum disease, dental caries and enamel defect are commonly found among the Tiwa children. Tooth decay and gum disease are seen mainly in the school going children. Most of the children do not have any knowledge of oral health and hygiene. The habit of cleaning the teeth and mouth after every meal, brushing the teeth with tooth paste are rare. White marks on tongue and bad smell of mouth are common among the Tiwa children.

Nutrition is vital during the rapid phase of growth in the neonatal and early infantile as well as school going period. To study the nutritional status BMI is considered as the most fruitful assessment. BMI is regarded as a simple and reliable index of current nutritional status. The height for age and weight for age are also significant in nutritional assessments.

In the study area, no severely mal-nourished children of 0-14 years age has been found. 4.45% of malnourished male children and 8.37% malnourished female children are found in the age group of 1-14 years. In moderately malnourished category the male and female children show the percentages of 4.75 and 5.36 respectively. The percentage of mild malnourished male and female children are 14.60% and 13.73% respectively. 10.53% male children are of low body weight where the
female percentage is 11.72% 62.98% male and 59.9% female children are of normal level of nutritional status. The obese status is negligible among the Tiwa children and it is only 1.09%.

When the weight for age of infants (0.1 months to 12 months) are considered male infants show 27.43%, while female infants show 26.73% in below normal category. A gradual decreasing trend of body weight is seen after birth. The weight for age of the 1-4 years age group have shown that 24.80% male and 25.84% female children are of below normal weight. Again in the age group of 5-14 years, it is found that 25.07% male and 27% female children are of below normal weight.

Regarding the height for age, the male children were found to be less below normal height than the female counterpart. A gradual decrease of normal height is also observed in both the sexes.

Male children 0-1 < 1-4 < 5-14 years = 21.23% < 24.80% < 25.35%

Female children 0-1 < 1-4 < 5-14 years = 23.76% < 25.76% < 27.30%

Food is directly related to health and nutrition. Due to lack of education, economic condition and poor nutritional knowledge of the mothers the Tiwa children are deprived of proper and healthy diet.
Traditional belief about food, 'Mana' or prohibition on certain foods are additional causes of malnutrition.

The breast feeding is considered as a natural and necessary process to nurture the infants. It is practiced on demand through day and night. 100% mothers prefer complete breast feeding up to 6 months of the baby. It is also observed that breast feeding is provided freely in their own home, outside the home and in working places also. The mothers have no knowledge that the colostrums or first milk secretion should be given to new born babies.

Children between 6 months and 2 years of age are at increased risk of malnutrition, because there is a transition between breast feeding and starting of family diet. When a baby is around six months old a special kind of home made cereal called luthuri (rice-flour mixed with banana and milk) is given. 16.5% mothers give market based (infant formula) cereal; 30.5% give home made cereal, 35.5% give both market based formula cereal and home made cereal and 17.5% mothers give only breast milk as it is available for their infant even after six months.

There is a strong relation between the health of the mother and the health of the children. The lower income group women work for longer hours than men. Their work patterns differ and are more prone to health hazards. The daily collection of water, collection of fire wood and fodder
are an arduous task for the Tiwa women besides doing the households works like cooking, washing clothes, cleaning cowshed and pigsty, and looking after the domesticated animals etc. They spend long hours indoor with smoky ‘chula’ for cooking. The lactating mothers are not much concerned about their diet and do not get time for looking after themselves. They follow many prohibition about diet.

There is no difference in the type of food consumed by the pre-school age (1-4 yrs.) and school age (5-14 yrs) children. The daily consumption of pulses, green leafy vegetable, meat are rare among the children of both the age group. The intake of milk and milk product are also negligible. The parents are not at all concerned about the quality of food. The children take boiled rice (bhat) as a staple food for three times a day. They take boiled potato or roasted potato or mixed vegetable curry with rice. Potato, brinjal, papaya, arum root or stem are the main vegetables for them. Non-vegetarian food items like meat, fish and egg are rarely provided to the children.

In almost all the school there is the provision for mid-day meal, but only three schools are providing prepared meals such as ‘khichuri’ or boiled rice with soeabean curry to the students. Other school authorities distribute raw rice, dal, potato, and onion to the school children on every Saturday.
In the study area from the household level investigation, various diseases and illness of the Tiwa children have been revealed. 11.11% children in the age group of <1 year (male-6-11%, female 20%) have suffered from diarrhoea and dysentery; 5.57% male and 6.56% female children are in age group of 1-4 years and 7.75% male and 7.39% female children are of the age group of 5-14 years. Water borne diseases are mainly related to drinking water. The villagers are not at all aware of pure drinking water. 50% families use water without boiling or filtering in which 66.25% diseased children are found.

The highest numbers of infants are affected by worm in the age group of <1 year and the percentage is 24.44 followed by 5-14 years (18.92%) and 1-4 years (18.43%).

Malaria is not a frequently occurring disease in the study area. 1.51% infected children are found in the age group of 1-4 years of which 0.76% is male and female children. In the age group 5-14 years 1.08% malaria infected children are found where 0.54% is male and 0.54% is female children.

It is revealed that 54.25% families have kacha latrine where 46.25% diseased children are enlisted. 32.5% families use open field or hill side for nature’s call and they have 46.25% diseased children. 13.25% families have sanitary latrine and had less diseased children i.e. 7.5%
Skin diseases like scabies, prickly heat, fungus infections are caused by water scarcity, poor sanitation, and poor hygiene. In the study area 8.33% infants, 12.88% preschool age and 10.63% school age children have suffered from skin diseases. The highest percentage of diseased children i.e. 30.21% is found in the families who use water of the nearby ponds; 29.29% diseased children are from the families using water from nearby stream.

The highest (13.33%) percentage of infants have suffered from fever in the preschool age and school age children. In 1-4 years age and 5-14 years the percentages are 9.09% and 10.27% respectively. Pneumonia, an infectious disease is also found in the study area. All total 7.26% children are suffered from Pneumonia.

Asthma is a serious allergic disorder and in the study area 5.55% infants (<1 yr.) and 1.51% children in the age group of 5-14 years are recorded. Cough is also an allergic disorder, which is caused due to the infection of throat, lungs, respiratory tract etc. All together 11.94% children have suffered from cough of which 16.11% in <1 year, 11.17% in 1-4 years and 11.17% in 5-14 years age group.

Smoke is the main cause of allergic disorder. In the study area 63.25% families use smoke filled 'chula' for cooking, where 49.27% children are diseased. 22.25% families use coal 'chula' and kerosene stove,
where 28.49% children are diseased. 14.50% families use gas stove, where 22.24% diseased children are found.

Measles and mumps are two diseases caused by viral infection. All total 7.35% measles affected children are found during the field study. 6.81% children are in the age group of 1-4 years, 10.9% measles infected children are of (5-14 years) of age group. In present study 2.52% children of the age group of 1-4 years and 1.80% children of 5-14 years of age group have suffered from mumps. Flu is a virus infected common disease. Altogether 7.77% infants have suffered from flu; in 1-4 age group the percentage is 2.77% and in 5-14 years age group the percentage is 2.52.

Anemia is defined as a reduction of RBC volume or Hb concentration in blood. In the study area 13.13% children from 1-4 years age group and 10.09% children of 5-14 years are found anemic but no infant is recorded as anemic. It can be assumed that breast fed infants get sufficient amount of folic acid, iron supplements, vitamins etc. from their mothers’ milk. Such sufficient food is not available for the school going children in their diet that they consume every day.

Conjunctivitis, ear pain, oral problem are important to the physical and psychological health of the children. Both <1 year infants and 1-4 years children show 1.41% infection of conjunctivitis. For 5-14 years children it is 3.71%. <1 year infants show the highest ear-ache percentage
and it is 2.65%, 0.88% of 1-4 years children and 0.18% children of 5-14 years age group have suffered from ear-ache. 0.88% of 1-4 years and 2.74% of 5-14 years age group children have oral and dental problem like dental decay, gum pain etc. Discoloration and structural damage of teeth are also found among the children of age group 5-14 years. According to dentists, these may be caused by malnutrition, inappropriate diet; calcium deficiency etc. and that lead to discomfort and tooth loss. The children do not use tooth paste regularly. They use coal, salt with mustard oil, herbal stem for cleaning their teeth.

The gum diseases like inflammation of gum, gum pain, bleeding gum are common among the children of 1-14 years. 3.03 and 1.06 are the percentages of gum infected children in the age group of 5-14 years and 1-4 year respectively.

Diseases are related to house types also. Houses of different types like pucca house, semi pucca house, house with mud wall and mud floor, hut with bamboo wall and mud floor are noticed in the survey area. When the house types are related to different diseases it is found that

Skin disease : mud house > hut > semi pucca > pucca

= 4.06% > 3.71% > 2.21% > 1.05%

Flu : mud house > hut > semi pucca > pucca

= 1.42% > 0.88% > 0.61% > 0.51%
Common cold and cough, mumps, measles and worm infestation show the same sequence \( i.e. \)

\[
\text{hut} > \text{mud house} > \text{semi pucca} > \text{pucca}
\]

Measles : 4.24% > 3.27% > 1.32% > 0.44%

Cough and cold : 4.41% > 4.24% > 3.09% > 0.18%

Worm infestation : 6.19% > 5.84% > 5.2% > 2.48%

Mumps : 0.97% > 0.51% > 0.36% > 0.09%

Malaria and asthma : mud house > semi pucca > hut > pucca

Malaria : 0.44% > 0.36% > 0.18% ? 0.09%

Asthma : 0.88% > 0.70% > 0.61% 0.26%

From the above findings, it is agreeable that the unhygienic damp conditions aggravate some diseases.

The Tiwa people domesticate animals and birds like cows, pigs, goats, ducks, fowls etc. These animals and birds make the house environment dirty, specially pigs are very dirty animals which make the surrounding like pigsty. It is enlisted that maximum diseased children (28.47%) are found in pig rearing families, which is followed (15.03%) by the pig and cow rearing families. When the livestock are related to different diseases it is found that

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\text{pig} > \text{pig and cow} > \text{cow} > \text{pig and fowl} > \text{pig + goat} > \text{pig + duck + fowl + parrot} > \text{no livestock.}
\]
Pig is the main domesticated animal of the Tiwas and pig rearing families showed highest diseased children specially for worm infestation, diarrhoea and dysentery.

Immunization is one of the best ways to protect the children from many dreaded diseases National Health Policy, 1983 set one of the goals of universal immunization against six vaccine preventable diseases. Regarding immunization of pregnant women, only 26.52% women show completion of immunization coverage. 70.26% pregnant women are found as partially complete immunization coverage. 3.22% pregnant women have not taken any vaccination.

The immunization coverage of the children is not so poor, it is 33.90%. 41.20% children are continuing the process and 22.17% children have not completed immunization, 2.73% children are not vaccinated at all. The percentage of child birth at home is 55.77% and it is done by unskilled attendant like 'dhai' or midwife. 45.33% child birth take place in hospitals.

Among the Tiwa children the total mortality rate is 42.14 per 1000 live birth. The maximum mortality rate is found in 1 year of age and it is 70.09. In 1 to 4 years age group it is 50.22. The under five mortality rate is
60.14. 26.95 per 1000 live birth is the mortality rate of the age group of 5-14 years.

The female children mortality rate is quite high in comparison to male child mortality rate.

0 - 1 > 1 - 4 yrs. > 5 - 14 yrs.

M. R. of Female = 42.05 > 28.98 > 14.97

The highest cause of mortality among the infants is due to fever and pneumonia and it is 20% in male and 26.67% in female infants. The causes not known and high fever death are found to be 20% in male and 33.33% in female infants.

Regarding causes of mortality in 1 - 4 years age group children, the diarrhoea and dysentery is the highest i.e. 36.36% in male and 33.34% in female children; the percentage of fever and pneumonia is 27.27% in male and 26.67% in female children; causes not known is found 18.18% in male and 26.67% in female children; malaria and jaundice are the other causes of mortality and the percentages are i.e. 9.09 in male and 6.66 in female children.

When the causes of mortality among the 5 - 14 years children is considered diarrhoea and dysentery is found as the highest cause i.e. 25% in male and 50% in female children; in pneumonia it is 12.5% in male and
10% in female; in high fever and causes not known the percentages are
37.5% in male and 20% in female; in malaria only 10% female children
mortality was found.

In the present study it is found that most of the Tiwa people believe
in traditional medicine. They prefer herbal medicine and magico-religious
treatment. The health care practice depends upon environment conditions
in which they are living and influenced by various cultural factors. They
believe on indigenous medicine man called ‘kabiraj’ and medico-religious
practitioner called ‘oja’. The Tiwa people believe that most of their
diseases can be cured by using herbal medicine and also by propitiating
God for certain diseases.

The important point is that knowledge about the preparation and use
of the herbal medicine is widespread throughout the community. They not
only believe in herbal medicine, but also have widely accepted belief in
supernatural power, evil eye etc. evil eye also.

The Tiwa people strongly believe in supernatural power. The
common observation in the villages is that, if a child is considered to be in
the influence of evil eye or bad spirit, he or she is taken to the ‘oja’ who
treat the child through ‘jora-phuka’ (enchanting mantras and whiffing and
sprinkling water). It has been observed that interference of supernatural
belief is strong in the context of health and disease. The people have
special Gods for various diseases like epidemic, pox, anemia etc. Religious performances occupy an important place in the treatment of disease. The parents of a disease child perform a puja or sacrifice animals or birds to please the deity and cure the child. They usually sacrifice goat, pig, hen, duck, pigeon etc.

Magico-religious performances occupy a prominent role in the treatment of disease. They sacrifice several objects in the name of deities. Use of talisman (Maduli), sacred thread or (Ga-bandhan) etc. are frequently seen among them. All the deities have their own respective department and areas of influence, effect and control, as well as nature of action. They believe in deities like 'Ma Sitala', Ma Manasha', 'Bash' (bamboo), Sani, Kartik etc. They o believe in ghosts like, 'Jarang deo', 'Maila', 'Bhut' also.

Apart from treatment with supernatural beliefs, certain other forms of treatment are also invogue among the Tiwa people. Medicated bath, massage, fumigation, purification, etc. are some such forms. In the present study it is found that 47% people fully believe in supernatural being, 50% people believe on symptoms and 3% people do not believe in supernatural power.

All societies have medical systems that provide a theory of disease etiology, methods of diagnosis of illness and prescription and practices for
curative or palliative treatment, Medical anthropology initially derived from anthropological interest in healing beliefs and practices of different culture (Tarafdar: 2005).

Many studies have indicated that tribal communities have strong faith in traditional methods of treatment, but the Tiwa people have shown interest to operate both traditional and modern medicine side-by-side, though they have strong faith in herbal medicine and supernatural power. In Morigaon district, very often health fairs are organized by district health authorities in the remote areas. The Tiwa people enjoy such fairs where facilities of free treatment and free medicine are available. Many experienced doctors like, pediatrician, dermatologist, eye specialist, dentist, ENT specialist, medicine specialist participate in the health fairs.

CONCLUSION
The end up, it can be concluded that the Tiwa people by and large, are backward in the fields of personal hygiene, education and economic condition. For the Tiwapeople, there is an urgent need for increasing their economic condition and level of education. There is a dire need to make the people aware of good personal hygiene, cleanliness, proper sanitation habit, pure drinking water habit and positive conception of modern medical system, which may directly or indirectly help in gaining better health of the children for better future.