CHAPTER V

SUMMARY

AND

CONCLUSION
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The discovery of HIV in 1981 and subsequent emergence of AIDS has made an important landmark in the recent history of mankind due to its deleterious effects in pandemic nature. Since then, researches on HIV and AIDS has been undergoing extensively with reference to risky human behaviours in different parts of the Globe with implications of public health services. AIDS has been understood not simply as a biomedical problem but as a complicated psychosocial development too (Kapur and Mukhopadhyay, 1995) requiring multi-disciplinary approaches to prevent it from further ramifications. Biological responses to the socio-environmental and behavioural influences and their interdependent relationship in the background of local belief and value system are the paradigm of medical anthropology-As for example, vaccine trial in the attempt of developing an effective preventive measure of the epidemic in time and space pauses a problem of rejection and denial for reasons of local social and political value system among different communities in the world. In certain societies, even simple testing for HIV antibody for reasons of better medical attention and management face a strong denial at the individual and family level due to the operating system of social stigmatization of quarantine nature and human discrimination.

Tuberculosis is the commonest opportunistic disease in HIV positive persons in India and can develop at any stage of disease. Many studies have given the clinical
profile of Tuberculosis in HIV positive persons in USA and Africa (Raviglione MC, et al. 1992) However, there is a paucity of such data from India (Purohit SD et al. 1996 and Deivanayagar CN et al. 2001) Hence, it is important to study their profile, as it would help in making an early diagnosis and treatment.

Manipur is one of the seven states of North East India. Geographically, having a total area of 22,327 Sq. km, it is divided into two tracts, namely the hills consisting of five districts and plains with four districts. It is bounded by Myanmar on the east, Nagaland on the north, Assam and Mizoram on the west and Myanmar and Mizoram on the south. The total population of the state is 2,388,634 and out of it, 1,207,338 is male. The state is inhabited by different ethnic groups, namely Meiteis, Meitei Pangals, and Scheduled castes in the valley, and the Nagas and Kuki Chin tribes in the hills. People are predominantly Mongoloid in their physical features. Meitei, inhabiting the central valley is the most populous and dominant community of the Manipur state.

The present research work looks forward to exploring the impact of Pulmonary Tuberculosis on physique and body composition of HIV positive Meitei male individuals residing in Manipur. An attempt has also made to find out the inter-group variations in anthropometric, physiological, body composition and the socio economic and socio cultural variables among the HIV/AIDS and Pulmonary tuberculosis co-infected patients, only pulmonary TB patients and healthy individuals. It also looks forward to observe the signs and symptoms experienced by the HIV/AIDS and pulmonary tuberculosis co-infected patients, magnitude of severity and the frequency of recurrence of tuberculosis among the patients. The subjects studied were the adult Meitei males ranging in the age from 20 to 40 years. Sample for HIV/AIDS and pulmonary TB co-infected patients
(Group I) are collected from JN Hospital Porompat, RIAC centres of Khergao, Irlbung, Keirao and Kumbi and from other various NGO’S of Manipur state who are working in the area of HIV/AIDS. Likewise sample for only pulmonary TB patients (Group II) are collected mainly from Lei-Ingkhol Tuberculosis Hospital, where pulmonary TB patients from different parts of Manipur come for treatment, from DOTS centre of Nongmeibung, Bamon Leikei and Yaiskul. Samples for Group III were collected from different parts of Manipur. Field areas for this group were Palace Compound, Bamon Leikai and Khongman (Imphal East). Yaiskul, Pishum, Sagolband and Nagamapal (Imphal West). Thanga, Moirang and Kumbi (Bishnupur District).

The cross sectional sample constitute of 300 subjects (100 subject each from Group I, II and III). Information regarding age group, educational status, socio-economic status, assessment of their physical activity and food habits were also collected. In addition to this information of their treatment seeking behaviour of Group I and II patients in terms of type of practitioner consulted, diagnosis, drug taken and final outcome were also collected.

Various body measurements of three broad categories viz Anthropometric, Physiological and body composition were recorded for the present study. Under the head anthropometric measurement altogether 12 measurements consisting of 4 Linear (Height Vertex, Sitting Height Vertex, Lower Extremity Length, Upper Extremity Length), 1 ponderal (Body Weight), 7 girth (Chest Girth I, Chest Girth II, Calf Girth, Arm Girth, Horizontal Circumference of Head, Biacromial Breadth, Hip Breadth) measurements were taken. Physiological measurements include Systolic Blood Pressure and Diastolic Blood Pressure. And the body composition include 8 derived
measurements viz Body Fat Percent, Height-Weight Ratio, Body Mass Index, Ponderal Index, Body Surface Area, Blood Volume, Total Body Water. Apart from these 5 indices were calculated out of the relevant anthropometric measurements to see the body build of the subjects under study viz Relative Upper Extremity Index, Relative Biacromial Breadth Index, Relative Chest Girth Index and Robusticity Index were collected from the subjects.

The data collected from the subjects were subjected to proper statistical treatment using Excel and SPSS Software for calculating measures of central tendencies viz- mean and measures of dispersion viz- standard deviation and their respective standard errors as well as test of goodness of fit viz 't' and $\chi^2$. Various graphic illustrations were used for representing the data and findings so that the same could be presented in a scientific, comprehensive and systematic illustrative manner in the Thesis. The over all findings of the present study are presented below.

- Body weight shows decreasing trend with an increase in chronological age among HIV/AIDS and Pulmonary TB co-infected Meitei male patients. However, no such regular trend could be seen in only Pulmonary TB patients and in Healthy individuals. Body weight is observed to be higher among Healthy individuals than the Co-infected and that of only Pulmonary TB patients.
- There is no consistent trend of Stature with age in all the three groups of present study. Stature is found to be higher among Co-infected groups.
- Sitting Height Vertex does not show any consistency with age in all the three studied population groups. It suggests no changes in sitting height vertex with age. Sitting Height Vertex is found to be highest among healthy individuals.
• Upper Extremity Length does not show a clear cut trend of either increase or decrease with chronological age in the entire three population groups. Upper extremity length is found to be higher in co-infected group.

• Lower Extremity Length shows no consistency with chronological age in all the three studied populations. Looking into the mean value, the three populations show almost an identical lower extremity length with marginal difference.

• Like other body parameters Biacromial Breadth does not show a clear cut trend of either increase or decrease with chronological age in all three population groups. Biacromial Breadth shows higher mean value among healthy individuals than the remaining two groups.

• Hip Breadth doesn't show a clear cut trend with age in all the three groups of present study. Healthy individual possess greater Hip Breadth than the Co-infected and only Pulmonary TB patients.

• Chest Girth at normal and maximum inspiration shows decrease with an increase in chronological age among HIV/AIDS and Pulmonary TB co-infected patients. However, in only Pulmonary TB patients and Healthy individuals no such consistent relation of age with Chest Girth is observed. Chest Girth is found to be higher among Healthy individuals.

• No regular trend is observed in the mean value of Calf Girth in all the three groups of the present study. Calf Girth is found to be higher among Healthy individuals then the Co-infected and only Pulmonary TB patients.
• Mean value of Arm Girth shows no consistency with age in all the three groups of the present study. Arm Girth is found to be higher among Healthy individuals and least among TB patients.

• Horizontal circumference of head also reported no regular trend with chronological age in all three population group. Horizontal circumference of head is found to be highest among healthy individual and lowest among TB patients.

• Body Fat Percent does not show any consistency with age in all three groups and the reasons may be the potential complication of drugs for co-infected and only pulmonary TB group. Body Fat Percent shows highest mean value among healthy individuals.

• Mean value of Body Mass Index doesn’t show any consistency with chronological age in all three groups of present study. Body Mass Index is found to be highest among Healthy individuals then the co-infected and only Pulmonary TB patients.

• Ponderal Index does not show any consistency with age in all the three groups of present study.

• Total Body Water shows decreasing trend with increasing chronological age among the HIV/AIDS and Pulmonary TB co-infected Meitei male patients. However, no such regular trend could be observed among the remaining two groups. Total Body Water is found to be highest among healthy individuals then the co-infected and only Pulmonary TB patients.

• Mean Value of Body Surface Area Shows decreasing trend with increasing chronological age among the HIV/AIDS and Pulmonary TB co-infected Meitei
male patients. However, no such regular trend could be observed in only Pulmonary TB patients and Healthy individuals. Body Surface Area is found to be highest in Healthy individuals. Body Surface Area is found to be highest among healthy individual.

- Blood volume shows decreasing trend with increasing chronological age among the HIV/AIDS and Pulmonary TB co-infected Meitei male patients. However, in only Pulmonary TB patients no such regular trend could be seen before the age of 29 years. Blood volume is found to be highest among the Healthy individuals.

- Total Body Water shows decreasing trend with increasing chronological age among the HIV/AIDS and Pulmonary TB co-infected Meitei male patients and this may be because of the fact that body weight also decrease with chronological age which helps the total body water present in the human body to decrease with age. However no such regular trend could be observed in only Pulmonary TB and Healthy Individuals. Total Body Water is found to be highest among healthy individuals.

- In case of HIV/AIDS and Pulmonary TB co-infected Meitei male patients’ systolic blood pressure shows decreasing trend with increasing chronological age while such trend is not observed in remaining two groups. Systolic Blood Pressure is highest among healthy individuals.

- Diastolic blood pressure shows decreasing trend with increasing chronological age among the HIV/AIDS and Pulmonary TB co-infected Meitei male patients while such trend is not found in his other two counterparts. Diastolic blood pressure is also found to be higher in healthy individuals.
- Relative Upper Extremities Indices doesn’t show a clear cut trend of either increase or decrease with chronological age in the entire three population groups.

- Relative Biacromial Breadth Index shows no consistency with age in all three population groups. Mean value of Relative Upper Extremities Indices is slight higher in healthy individual.

- Relative Chest Girth Index doesn’t show a clear cut trend of either increase or decrease with chronological age in the entire three population groups. Relative Chest Girth Index is also found to be highest in healthy individuals.

- Robusticity Index does not show any consistency with age in all the three groups of the present study. Comparing the distribution of robusticity index in conventional categories (Tschernorutzky), it is observed that HIV/AIDS and pulmonary TB co-infected Meitei male patients falls within the weak categories of body build. While only pulmonary TB falls in very weak categories. Robusticity Index shows highest mean value in healthy individuals.

Generally no major differences between signs and symptoms experienced by the HIV/AIDS and Pulmonary TB co-infected patients and only pulmonary TB patients except in case of night sweat and intermittent headache. Cough is reported to have less frequent among the HIV/AIDS and pulmonary TB co-infected patients. In the present study, duration between experiencing the symptoms and its clinical diagnosis is more among the only pulmonary TB patients than the HIV/AIDS and pulmonary TB co-infected patients and the main determinants of delay were: socio-demographic; economic; stigma; time to reach the health facility; seeking care from
non-specialized individuals and visiting more than one health care provider before diagnosis. Our detailed analysis reveals that the interacting factors affecting patients’ health-seeking behaviour and the availability of treatment can be categorized as involving either the patient or health care provider. Most factors influence both patient and health care delay, but some factors were more closely related to patient delay. The delay in diagnosis on the part of health providers does not necessarily reflect poor performance, but instead a lack of effective diagnostic tools and follow-up routines. Correct diagnosis requires both good training and available diagnostic facilities.

One of the most important barriers in HIV/AIDS and Tuberculosis control programme is the stigma involved with the disease. Many patients of pulmonary TB were highly reluctant to visit the RNTCP facility, because it would mean disclosing to the public that they had pulmonary TB. The widespread introduction of DOTS also means that patients must visit daily so that their consumption of medication can be directly observed; this is perceived as humiliating, time consuming and a threat of a substantial lapse of income. In case of HIV/AIDS patients fear of rejection and of loss of intimacy made disclosure difficult and was perceived as a major obstacles for condom use among recently diagnosed HIV infected individuals. To keep HIV under control, it’s vital to maintain a healthy outlook and avoid stress. Body’s natural ability to heal is affected by diet, and stress levels, as well as the health of intestinal system, level of hormones, psychological and emotional health.
The present study shows that there is a need to develop separate strategies for diagnosis, care and treatment of these two groups if better treatment results are to be obtained. Emphasis should be placed on development of new strategies of treatment since simultaneous use of multiple drugs cause side-effects. Close monitoring is required to detect and prevent this complications.

Nutritional supplementation particularly vitamin A and Zinc among pulmonary TB patients is highly recommended. HIV/AIDS and TB treatment and control will be possible, if strong local community support and participation is involved. Selection of outreach workers from same ethnic group to allow access to all areas is recommended.

The overall findings of the present study in a nutshell reveal that out of the 25 physical traits considered in the present study, healthy individuals have highest mean values in 20 traits. These traits include all the ponderal, girth, physiological and body composition measurements. This is certainly because of the fact that diseased condition of the subjects among Group I(HIV/AIDS & TB co-infected patients) and Group II (only pulmonary TB) reduces the body mass, fat content and muscle mass. In case linear measurements which is more of constant nature and less subjected to environmental factors, Group I and II show higher mean value in some of them. On the other hand only pulmonary TB infected patients show least mean value in most of the traits (19 traits) which obviously is because of prolonged exposure to the disease as compared to Group I.

Inter group comparison shows comparatively less significant differences for linear measurements. Because of greater degree of variations among the groups,
significant difference is observed in all three groups with regards to Body Weight and all the girth measurements viz Body Weight, Chest Girth I; Chest Girth II, Calf Girth and Arm Girth. The same holds true for all the derived body composition measurements viz Body Fat Percent, Body Mass Index, Ponderal Index, Body Surface Area, Blood Volume and Total Body Water. Similarly, excepting in between Group I and II (for bi-acromial breadth) inter group significant differences are observed in all the breadth measurements. As regards somatometric Indices, lesser inter group significant differences are observed for those indices which involve linear measurements like Relative Upper Extremity Index, Relative Biacromial Breadth Index. But in case of Robusticity and Relative Chest Girth Index statistically significant difference is observed among the three groups. In short differences are more pronounced in diameter, girth, weight, physiological and body composition measurements. The variations observed are mainly as a result of exposure to different disease and environmental conditions and not because of genetic factor as the three population groups under study belong to the same community. However, further study on different communities in a similar approach shall be of substantial help in adding flavour to the present work.

In conclusion it is certain that the present physical anthropological study would provide valuable scientific data for the present population. This information may profitably be utilized to solve problems and improve services for HIV/AIDS and tuberculosis control programme and health policy evaluation of the country in general and Manipur state in particular.