Chapter 10

Summary

A large number of world population is estimated (about 10%) as disabled (UN, 2003). Concepts and definition of disability varies between countries as well as the prevalence rates. NSSO (2003) report reveals that among the different types of disability in India locomotor disables are highest in number. In the present study the definition of disability given by World Health Organization (1980) has been used for its objectivity. Besides medical reasons of disability, several other factors also enhance the disabling condition of the disables e.g. poverty, illiteracy, inadequate health and medical facilities etc. and such situation is true in case of under developed and developing countries.

The concern of the present study is locomotor disables, who often suffer from deterioration of physical and mental health problem. They are not considered to be a productive member of the society, which is supposed to be the economic waste and human deprivation. Several acts and guidelines have been adopted in India for the disables in order to provide social justice and equal access to different social system with other fellow citizens of the society.

Review of the available literatures (vide chapter 1) on disability problem show that most of the studies on disabled persons have been done abroad. Indian studies are rare and based on small samples. Besides most of the studies are based on single aspect of health and the results of the studies using similar health traits show conflicting findings. Therefore, a study with a holistic approach on a particular disability is necessary.

In view of these, the objectives of the present study are to look into the possible change in physical, mental and social health status of the disables and to look into the possible relationship of health status with disability type, socio-economic condition and rehabilitative aids. Adult, male, rehabilitated and unilateral lower extremity amputees living in and around Calcutta city have been considered as the study group.

The particular groups and the area of study have been chosen because (1) locomotor disables are more in number than the other form of disables and it is relatively easier to
collect data from the locomotor disables compared to other sensory and/or mentally disables; (2) traumatic amputation is one of the leading cause of locomotor disability, which affects lifestyle, mental and social make-up of the individual and health status of the amputees as well; (3) the area of Calcutta city was chosen for its convenience to undertake fieldwork through frequent home visits for data collection.

Data have been collected from a total number of 109 amputees of Calcutta having prosthesis from two rehabilitation centers namely National Institute for the Orthopedically Handicapped and Mahavir Seva Sadan. All subjects confirmed their participation in the present study through written agreement. Data have been collected on the following domains: demography, anthropometry, ailment symptoms, lung function, cardiovascular health, haematology, mental health and social health (vide chapter 2). All the data have been collected by single investigator, using standard methods and techniques through home visits.

The design of the present study - (1) comparisons have been made between amputees and normal controls (normal individuals- controlled for age, sex and socio-economic status with disables) in respect of physical and mental health traits in order to determine the possible changes in health of the disables; (2) comparison have been made between/among different groups of the amputees (classified into different categories) in respect of different health traits in order to determine the possible changes between/among different categories of amputees.

The study group (i.e. the adult lower limb amputees), show a more or less similar age-sex population structure with the general urban population of India, although study group show larger household size. Nearly 75% of the amputees are married and a high percentage (about 90%) of amputees are literate (speak, read and write). Monthly per capita expenditure of more than 75% of the amputee families are above Rs. 490. Nearly 68% of amputees reported a number of ailments/symptoms, prior to 3 months at the time of data collection.
Findings of the present study

Amputees show relatively lower mean values in several anthropometric traits than normal controls although; mean value of body mass index of amputees is higher than normal controls. Mean values of anthropometric traits of above knee amputees are higher than those of below knee amputees. Mean values of most of the anthropometric traits show a direct relationship with the socio-economic condition of the amputees i.e. amputees, having low socio-economic condition, are likely to have smaller body dimension.

Amputees show poor cardiorespiratory health traits compared to normal controls as depicted from the lower mean values of lung-function traits and higher mean values of blood pressures and resting heart rate. Above knee amputees show higher mean values of all cardiovascular traits than that of the below knee amputees. Most of the cardiorespiratory traits show a causal relationship with the socio-economic condition of the amputees. Comparison among the prosthesis users show that ‘type 2’ prosthesis users have higher mean values of most of the lung function traits than the ‘type 1’ prosthesis users and ‘non users’. Conversely, ‘non users’ show higher mean values of blood pressures and resting heart rate than ‘type 1’ and ‘type 2’ prosthesis users.

The mean values of haemoglobin, haematocrit and total cholesterol are lower in amputees than that of normal controls, whereas the mean values of blood glucose and triglycerides are higher in amputees than normal controls. Above knee amputees show higher mean values of all haematological traits compared to below knee amputees. Mean value of blood glucose is higher in high socio-economic group than the other two socio-economic groups. Conversely, the amputees of low socio-economic group have higher mean values of total cholesterol and triglycerides compared to other two socio-economic groups. ‘Non users’ of prosthesis show high mean values of all the haematological traits except blood glucose compared to other two prosthesis user groups. The results do not show any significant difference between/ among groups of prosthesis users in any of the haematological traits.

The mean value of Beck Depression Inventory (BDI) scores (to measure the degree of depression) is higher in amputees than the normal controls. The mean value of BDI score
is higher in below knee amputees than above knee amputees. Depression of the amputees (in terms of BDI score) shows an inverse relationship with their socio-economic condition i.e. amputees, having low socio-economic condition, are more likely to have more depression. Comparisons of mean values of BDI scores between/ among prosthesis users show that ‘non-users’ have highest mean value of BDI scores than ‘type 1’ and ‘type 2’ users and mean value of BDI scores is higher in ‘type 2’ users than ‘type 1’ users.

Depression of normal controls lies within the limits of normal levels (no depression and mild mood disturbance) whereas amputees show different level of depression. Among various causes of mental problems perceived by the amputees, the most conspicuous ones are economic insecurity, unpredictable nature of future, uneasiness due to presence of disability and unwillingness to participate in public gathering, etc.

Social health has been measured in the present study with the help of ‘Social Discomfort Index’. A large proportion of the amputees do not feel discomfort while interacting with others (normal individuals) in the society. Small proportions (11.01%) of individuals have reported moderate to extreme form of social discomfort due to the presence of disability. Higher proportion of above knee amputees has social discomfort than the below knee amputees. The result shows that proportion of individuals, who feel discomfort is relatively more in low socio-economic group compared to other two socio-economic groups. Furthermore, the proportion of individuals, who do not have discomfort, is more in the ‘type 2’ prosthesis user group. Proportion of individuals, who have discomfort is highest in the ‘type 1’ prosthesis user group.

A number of reasons behind social discomfort have been noted- the avoidance towards the other normal individuals of the society, discomfort due to presumed reaction of other normal individual for the presence of disability, discomfort in social interaction for other’s (normal individuals especially young ones) ill behaviour towards them, etc.

Comparison between/ among age groups of amputees in anthropometric traits show significant ANOVA values in case of biiliocristal diameter, bicondylar humerus and waist circumference. The mean values of all the lung function traits are highest in
youngest age group than the other older age groups. Significant difference exists between/ among age groups in case of systolic and diastolic blood pressures and that the blood pressure traits are showing a positive correlation with age. The mean values of most of the haematological traits show highest values in youngest group than the other older age groups. A significant positive correlation has been found between age and depression level of the amputees. Higher proportion of amputees does not feel any discomfort, of which the proportion of amputees having discomfort relatively more in older age groups.

Dietary intake, body mass index and upper arm circumference data of the amputees show significant positive correlation with each other. Calorie intake groups of amputees show that high calorie intake group have higher mean values of most of the anthropometric traits. All skinfold measurements show higher mean value in low calorie intake group. The mean values of blood pressures are higher in high calorie intake group than low calorie intake group while it is reverse for resting heart rate. Significant positive correlation has been found between dietary intake and blood glucose. The mean value of triglycerides is higher in low calorie intake group than high calorie intake group. Mean value of BDI is higher in low calorie intake group than high calorie intake group. Higher proportion of amputees of high calorie intake group does not feel any discomfort than amputees of low calorie intake group.

The mean values of most of the anthropometric traits show marginal variation with the duration of disability. However, the mean values of all skinfold measurements are highest in \(< 5\) years duration of disability group. Significant negative correlations have also been found for forced vital capacity and forced expiratory volume with duration of disability. The mean values of both systolic and diastolic blood pressure and resting heart rate are highest in \(> 15\) years group. Highest mean values of haemoglobin and haematocrit have been found in \(< 5\) years group. The mean value of blood glucose is highest in \(> 15\) years group whereas total cholesterol and triglycerides are highest in \(> 5 - 15\) years group. The mean values of BDI scores have an inverse relationship with the duration of disability. There is no clear trend of any association between social discomfort and duration of disability.
Rehabilitation efforts and its effect on the life of the disables have been evaluated in the light of Sewall Wright’s (1960) 'social fitness' concept. Sewall Wright's social fitness scheme has been illustrated to understand the relative contribution and cost to each other of the amputees as well as of the society. Proper rehabilitation generally enhances the contribution of the amputees to the society and helps the amputees to achieve higher category of Wright’s social fitness scheme.

Prosthesis is the primary rehabilitative aids for the amputees but present study indicates a very poor awareness of the amputees regarding prosthesis, its use, availability etc. In many cases doctors and other amputees have provided such information to amputees (not having prosthesis). Even those amputees, who come to collect prosthesis, generally have to wait for a long time to get prosthesis, because of delay in official processes. In spite of the fact that all amputees of the present study are rehabilitated to some extent (as all of them have prosthesis) but most of them have not received any financial or logistic support from any welfare organization.

User satisfaction is another issue in prosthesis, although a majority of the amputees reported that the prosthesis is satisfactory or within the range of non-dissatisfaction. The types of dissatisfaction about their prosthesis are - too heavy to move, not being tough enough, fitting problem, problem in normal bipedal gait, etc. A very small number of individuals prefer cosmetic looks in their prosthesis (personalized human skin like surface and colour etc.).

However, a large proportion of amputees, have been able to restore their daily activities and therefore are functionally independent in continuing their daily life, with the help of their prosthesis. Still some of them have problems for some specific jobs like - heavy works, household work of outside home, any household work etc. Most of the amputees received both mental and social support (social rehabilitation) from their close relatives and family members like parents, wife, children and other relatives. Some of them have also been inspired by friends, office colleagues, neighbours, etc. A great majority of the amputees do not think themselves as the burden of their family. Surprisingly, almost
similar proportion of the amputees have functionally restored their daily activity and subsequently been able to pursue normal household duties. However, a sizable proportions of amputees still think themselves as a burden of the family for poor economic condition, need extra care and so on.

Attitude of the society towards amputee is another concern, which is reflected in the change of occupation of the amputees. A large proportion of the amputees did not experience any change of their previous occupation (who was engaged in any way for economic pursuit). However, nearly half of the amputees experienced change in the occupation or role in the working place such as shifting to light duties, change of business/service, change of office hours and even the termination of the occupational pursuit.

In sum, it should be pointed out that contrary to the conventional wisdom, the present study fails to substantiate the notion of a poor health condition of the amputees, which may sound bizarre. However, some of the trends in the health traits of the amputees can not be altogether ignored, the trends may be suggestive enough that the amputees show poor health status. These trends are not claimed to be necessarily the effect of disability. It is intuitively understandable that the rehabilitation of the disables is one of the primary means for the restoration of health, which may have some effect on health traits of the amputees, but the effect of rehabilitation was not possible to measure. It is worth while to mention that all the amputees of the present study are physically rehabilitated (provided with prosthesis) to some extent, which have helped them to improve their mental and social health and ultimately alleviate overall health status. However, it is not possible to generalize the findings of the present study because of the small sample size and not considering other concomitants. Therefore, future studies should be oriented in exploring the problems of the non-rehabilitated amputees and the amputees of the rural areas in order to obtain a comprehensive understanding of health-disability relationship.