

CHAPTER II

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REVIEW OF LITERATURE

Roy et al., (1957) conducted a study on vital capacity of the Baigas and Gonds of Mandla district, Madhya Pradesh. Average height, weight, surface area and vital capacity measure of Gonds were found to be superior to those of Baigas. According to them superior vital capacity measure of Gonds as compared to Baigas is apparently due to the superior body measurements. In this line Rao et al., (1961) conducted a study on physiological norms in Indians for pulmonary capacities. Volunteers included in their study were from various parts of the country and with various income groups.

Schoene et al., (1981) department of Medicine, University of Washington made a study on the limits of lung function at high altitude from the data obtained from American Medical Research Expedition to Everest. Robert concluded that inspite of impressive lung mechanism and air flow total body function is further impaired by arterial oxygen desaturation with increasing exercise and altitude.

Weitz (1983) made a study on the effect of age and altitude of residence on the exercise capacity of native highlanders in Nepal. Maximal and sub maximal exercise tests were carried out on 86 male Sherpa and Tibetan resident altitude above 2980 m in eastern Nepal. Zuskin et al., (1984) conducted a study on the respiratory function in tea workers. They studied the respiratory function in 5 groups of tea workers and effect of tea on respiratory function in workers occupationally exposed to tea dust.

In the year 1989, Gupta et al., made a study on the altitude and human biology of Himalayan, Andean and Ethiopian data. Their study reveals that the high altitude Himalayan populations differ from Andean highlanders in their strategy for combating the environmental constraints but the Himalayan populations are relatively similar to the Ethiopian highlanders.

Lung functions and their correlation with height and weight were examined by Bhasin and Singh (1990) among Dogras of Jammu and Kashmir. Bhasin et al., (1991) studied physical growth and respiratory functions among five population groups of Jammu and Kashmir. Gujjars, Dogra-Brahmans, Dogra-Rajputs and Dogra-Scheduled Castes and Tibetans were studied for 23 anthropometric measurements and three lung functions. Dogra Scheduled Castes showed maximum growth, followed by Dogra-Rajputs, Dogra-Brahmans, Gujjars and Tibetans. For respiratory functions however,

Tibetans and Gujjars showed higher values than Dogra groups. Side by side Bhasin and Singh, 1992 studied anthropometric characteristics and lung functions among the Kashmiri Muslims of same area among Dogras of Jammu and Kashmir.

Schlunssen et al., (1993) conducted a study among the Danish woodworkers. A cross sectional study including 54 furniture factories and 3 control factories was conducted to survey lung function and prevalence of respiratory symptoms among woodworkers.

Mason (2000) made a study on the Physiology of high altitude: an introduction to the cardio-respiratory changes occurring on ascent to altitude. The study reveals that maximal oxygen consumption decreases with increases altitude. Another study was made by Schoene (2001) on the limits of human lung function at high altitude. The paper describes the limit of response and adaptation of the lung to the hypoxic stress, both at rest and during exercise.

Kapoor et al., (2005) made a study on the Body structure and Respiratory Efficiency among the high altitude Himalayan population. The study showed that those high altitude natives displayed significantly higher value of vital capacity, forced vital capacity and inspiratory capacity. The better respiratory efficiency observed among high altitude residents indicates higher degree of adaptation to high altitude hypoxia.

Temporary residents were observed to be tallest and fattest with lower trunk fat predominance of all the four groups and showed narrowest chest and lower respiratory efficiency as compared to high altitude natives.

Another study was made by Wu et al., (2006) on High Altitude Adaptation in Tibetans. The study presents understanding of altitude adaptation in Tibetans as compared to other altitude populations and to lowlanders. The difference very likely to have a genetic basis, even though the exact nature of this basis remains to be elucidated.

A study was made on High Altitude Pulmonary Edema by Maggiorini et al., (2001) on High-Altitude Pulmonary Edema. HAPE is characterized by severe pulmonary hypertension and bronchoalveolar lavage fluid changes indicative of inflammation. It is not known, however, whether the primary event is an increase in pressure or an increase in permeability of the pulmonary capillaries. Another study in the year by Clarenbach et al., (2012) on lung function and breathing pattern in subjects developing high altitude pulmonary edema. The results comprehensively represent the pattern of physiologic alterations that precede overt HAPE.

Weitz et al., (2016) made a study on Larger Forced Vital Capacity and Forced Expiratory Volume for One second among Tibetans compared to Han born and raised at high altitude. Forced Vital Capacity and Forced Expiratory Volume for One Second test

were conducted among 1063 children and adolescents between the ages of 6 and 20 years and 184 adults between the ages of 21 and 39 years who had lived their entire lives at 3200m, 3800m and 4300m in Qinghai, China. The results shows that Forced Vital Capacity(FVC) and Forced Expiratory Volume for One second(FEV1) values of Han born and raised at high altitude are generally lower than those of Tibetans through age 15 in girls and age 16 in boys, differences are largely explained by variation in stature and chest circumference. Among older adolescents and adults, the FVC and FEV1 values of Tibetans are significantly larger than those of Han born and raised at high altitude and are much larger than would be predicted based on stature and chest circumference.

Chiang et al., (1969) made an article on Overweight and Hypertension. The study describes that obese hypertensive subjects experience a greater risk of coronary heart disease than the non-obese, and mortality rates for obese hypertensive persons are higher than for those with obesity alone or hypertension alone.

Frisancho (1979) made a study on the functional adaptation to high altitude. The studies report that among the high altitude natives the frequency of essential hypertension and heart disease are significantly lower than among their counterparts at sea level.

A study was made on “Epidemiology of hypertension and cardio vascular disease- China experience” by Liu in 1990. The study showed higher BP level, lipid level and higher prevalence of coronary atherosclerosis in North and South China. Urban populations have higher prevalence of hypertension than rural, high altitude dwellers usually have lower prevalence.

Another study was made by Kaur et al., 2012 on the prevalence of hypertension and its association with body fat percentage among government and private school girls in Ludhiana. The significant difference between private and government school girls could be attributed to the higher consumption of junk food and relatively lifestyle of the more affluent private school girls. In the same year Mandal et al., (2012) made a study on isolated systolic hypertension among the Bhotia of Uttaranchal. The study indicates that with the increase in age there is an increasing trend of occurrence of ISH. In the same year a cross sectional study was made on blood pressure and associated factors in a North African adolescent population - a national cross-sectional study in Tunisia by Aounallah-Skhiri et al., (2012). The results suggest that Tunisian adolescents of both genders are likely not spared from early elevated blood pressure.

Kundu et al., (2014) made a cross-sectional study on the ‘The relationship of blood pressure and obesity among adult Bengalee male of North 24 Parganas, West

Bengal' concluded that with the increase of BMI status there is a significant increase in both systolic and diastolic blood pressure.

Sanchez-Garcia et al., (2007) made a study on Anthropometric measures and nutritional status in a healthy elderly population. Body height and weight, BMI, body circumference, Waist Hip Ratio (WHR), elbow amplitude and knee-heel length were calculated from 1968 elderly population older than 60 years of age. Age related changes in anthropometric values were identified. The study shows that in case of BMI values 62.3% of the population was overweight, and 73.6% of women and 16.5% of men had high fat tissue distribution.

Another study was made by Banik (2008) on nutritional status of adult men from the Oraon tribe in Ranchi district of Jharkhand, India. It was a cross sectional study between three age group (18-39 years, 40-59 years and 60 years and above). The results recorded a low (18.48Kg/m²) BMI and a high frequency of under-nutrition (53.10% CED) among the adult Oraons.

A study was made on nutritional status of Baiga- a primitive tribe of Madhya Pradesh by Chakma et al., (2009). A cross sectional study was carried out from eight villages (400 households) which was randomly selected. The study shows that about 61% of the pre-school children were underweight out of them 24.3% children were

severely underweight. Prevalence of Chronic Energy Deficiency (BMI <18.5) was about 76% among adult population. In the same year another study was made on Nutritional status and Cardio-respiratory functions among adult Raji males, a hunter and gatherer tribe of the Indian Himalayas by Kapoor et al., (2009). The study involves 63 Rajis in the age range 21-70 years. The results recorded the lung functions, structural chest dimensions, muscular strength, stature, weight and body circumferences showed significant but negative correlation with age; however blood pressure and pulse rate displayed a statistically significant but positive correlation with age.

Milanovic et al., (2011) made a basic anthropometric and body composition characteristics in an elderly population. The study includes the elderly people between the age 60 and 80 years. Body height weight, BMI, body fat percentage, body circumference and skin fold thickness were being calculated. The result shows an apparent decrease in BMI that occurs at the expense of losing muscle mass and an increase in waist circumference and hip circumference.

Aliyu et al., (2014) made a study on the relationship between BMI and blood pressure among university students in Maiduguri. A total of 351 students participated in this study out of which 248 (70.7%) were males and 103(29.3%) were females. The study revealed a significant correlation among the parameters.

In the year a study was made by Ghosh (2016) on Nutritional status of tribal women: an epidemiological study among Santal-Munda tribes of North 24th Parganas district of West Bengal, India. The study shows that most of the respondent had normal BMI (76.27%), followed by under nutrition (19.49%) and overweight (4.23%). Another recent study was made by Nayak et al., (2017) on nutritional status of tribal women in Visakhapatnam district, Andhra Pradesh, India. The study was basically a cross-sectional study among the 225 randomly selected reproductive age group of tribal women of Visakhapatnam. Anthropometric measurements (height and weight) along with BMI were calculated. The study shows that one fifth of the study population were at risk of further nutritional deficiency.

Studies from North-East India

Jamir (2001) studied the nutritional status and physical growth of Ao Nagas of Mokochung district, Nagaland. Irrespective of differences in BMI, he found that the percentage of gain between younger and older age groups studied is almost similar among boys and girls as well as those falling in mild and severe malnutrition.

A study on Nutritional status of Tea garden workers of Assam with special emphasis to Body Mass Index (BMI) and Central Obesity was done by Biswas et al., (2002). In the study a total of 1014 tea garden workers aged 30 years and above were

randomly selected. The study shows that there is high degree of under nutrition among the respondents where females were the worst sufferer.

Mungreiphy et al., (2011) made a study on the association between BMI, blood pressure, and age: Study among the Tangkhul Naga Tribal males of North East India. Cross-sectional study was carried out among Tangkhul Naga males of Northeast India age ranging from 20-70 years.

Mungreiphy et al., (2012) made a study on relationship between nutritional status, respiratory performance and age: study among Tangkhul Naga females of Northeast India. Cross-sectional study was carried out among 346 Tangkhul Naga females from the age group 20-70 years. The results recorded that both low and high BMI were associated with poor lung functions, and showed inverse relationship. Evaluating the effect of age and BMI on lung functions showed that ageing had greater impact on respiratory performance. Sikdar (2012) made a study on nutritional status among the Mishing tribal children of North-East India with respect to their arm fat area and arm muscle area of 2965 children from the age group of 6-20 years. The Mishing boys shows higher mean values for AMA than those the girls. Whereas an opposite trend of sexual variation is found with respect to AFA.

In Northeast India important pulmonary studies was made by Choudhuri et al., 2015 on pulmonary function of adolescents from Tripura, a North-Eastern state of India. A total of 640 (320 from tribal and 320 non-tribal) healthy non-smoking male and female school children (age 10-14 years) from 4 districts of Tripura were being studied. Another study was made by Das et al., 2015 on a Study of Pulmonary function test among tea garden factory workers in relation to exposure of tea dust among the adult population. Another cross sectional study was conducted by Bharali et al., (2016) on prevalence of under nutrition, over weight and obesity among Nyishi tribal women of Arunachal Pradesh, North-East India. The study was done among 543 Nyishi tribal women aged 15-44 years of Pupum Pare district. The overall prevalence of under nutrition, overweight and obesity recorded to be 10.50%, 9.44% and 9.57% respectively.

Konwar et al., (2016) study on evaluation of Peak Expiratory Flow Rate in Tea Garden Factory Workers in Dibrugarh District, Assam reveals that the PEFR values of the tea factory workers were lower than that of the control group and that with increased duration of exposure to dust within the factory, there was a decline in their PEFR values.