INTRODUCTION

The human growth and development is a complicated but fascinating process which ultimately results in an adult of appropriate physical size, able to discharge highly potential biological functions. The measurement of physical growth is considered to be a single best indicator of state of health, nutrition, emotional and psychological development of a child. The study of human physical growth and development has long been identified with physical and biological anthropology. Anthropometric measurements are the simplest and cheapest techniques to study growth which helps to understand the human variation.

In the past, without critically assessing the underlying factors which influence growth and development, deviations from the accepted European and American standards were attributed to racial and genetic differences. But now it is well understood that good nutrition, better environment and higher socio-economic level can also explain these differences (Aykroyd and Rajgopal, 1936; Wilson, 1939; Mitra, 1939 and 1942; Bhave, 1941; Wilson and Widdowson, 1942; Rao et al., 1961).
With the help of precise tools of measurements, designs of study and statistical method of analysis, it is now possible to ascertain the influence of such factors as ethnic grouping, racial differences, geographic and climatic diversities. Owing to these differences, it is imperative to have norms for the various population groups in India so that any deviation in growth and sexual maturity be recognised at the earliest. There is a paucity of well worked out information on the growth profiles of adolescent children in India (Chopra, 1961).

During the last three decades, in India some anthropometric studies using various combinations of measurements on children of different socio-economic groups have been conducted. ICMR 1956–1965 conducted study covering all regions and employing scientific standardised techniques, which established norms of various anthropometric measurements for different age groups of children. These included measurements of height, weight sitting height, chest and heat circumference and also pubertal growth (ICMR, 1972) but their data fails to bring out the dynamics of pubertal growth in stages. Other studies carried out from Indian sub-continent are of similar nature and confined largely to weight and height. Further, these studies had drawbacks that like a proportion of subjects are from poor socio-economic status and uniform methodology was not adopted.
Physical growth and development are known to have close relationship to sexual maturity. The sexual maturity in children is fairly complicated (Stone and Barker, 1937; Krogman, 1950; Tanner, 1962; Watson and Lowery, 1967), varies from individual to individual (Dimock, 1935; Stuart, 1946; Tanner, 1962; Eveleth, 1979 and Meredith, 1971), it is known to be different in various racial groups (Aschcroft and Spurgeon, 1976) and is likely to be influenced by environmental factors (Marshall, 1981). At the same time there are well known landmarks in the adolescent growth of a children such as the accelerated velocity of physical growth, onset of development of secondary sex characters and menarche which coincide with maturity of internal sex organs. With the help of these landmarks, it is possible to chart out the growth pattern of an individual or group of individuals which can be compared objectively and scientifically. Boas as early as in 1932 has focussed the attention to the relationship between menarche and various aspects of growth and development.

So the present study was designed to investigate the adolescent growth pattern in children based on cross sectional data collection. A large number of physical measurements including weight, various lengths,
circumferences and skin-fold thickness and pubertal growth were undertaken. An attempt has been made to establish standards of various anthropometric measurements and stages of pubertal growth in affluent children of age group 6-16 years from this region.