5.1. Summary
Fitness level of the society has gone down because of technological advancement and human body has become a depot of various ailments either physical or emotional. Advancement of science and technology has made our life very comfortable and we have become habitual to be in the state of more comfort. Due to such comfortable life the physical activity and physical fitness has decreased tremendously. This results into a low fit society with poor state of physical health. Such society must be made aware of the physical health and physical fitness. Considering this concept, the countries of the West have been taking precautionary measures in introducing physical educational activities intensively right from the grass root level of education i.e., from pre-primary level.

Physical fitness means the capacity of an individual to perform a given task involving muscular effort. Efficiently working lungs and heart, general alertness, muscular strength, muscular endurance and flexibility of the body and body fat are Test signs of physical fitness. Program designed to help individuals to attain fitness are offered in schools. But adequate attention has not been paid with respect to the assessment and evaluation of the physical fitness status of the school students. The need to formulate norms for health related physical fitness test of the school students resulted into the present investigation.

Recent trends in school physical inactivity among school Boys often carry a negative social stigma that declines physical fitness and affects overall health. The investigator has formulated two major hypotheses to evaluate norms. It is amazing that there are no suitable norms for Health Related Physical Fitness variables especially for school children in Nasik district. This study, therefore, has been undertaken. The investigator formulated a useful battery of standardized physical fitness test items namely body height, body weight, BMI, body fat percent, 9 mints. run walk, sit-ups, push-ups, sit and reach for 11 to 13 year school Boys in Rural, Tribal and Urban area in Nasik district. He administered the said test battery to 9000 subjects from 67 secondary schools located in three different area i.e. Rural, Tribal and Urban of Nasik district. The subjects were
selected randomly. A group of competent and qualified officials under the supervision and control of the investigator administered the tests. The group of officials was tested for their reliability. The reliability of the test items was checked statistical with the help of co-efficient of correlation.

The pilot study was undertaken by researcher to observe reliability of data in which he decided to check subject’s reliability. Tester’s reliability. The response of the subjects to assess the feasibility of selected topic, financial implications, time consumption, equipment required and plays ground available.

The criterion measures chosen to test the hypothesis was Body-weight, measured with the help of weighing machine nearest to 0.5 kg. Standing body height was measured nearest to 0.5 cm by using a vertical scale fixed with the wall. Cardiovascular Fitness was measured with the help of 9-min run walk i.e. with the help of field event and scores were recorded in nearest 0.5 meter. % body-fat was measured by using digital Omran fat monitor (HBF-302) and the score was recorded directly in (%) percentage. Muscular endurance of abdominal muscles was measured by using Sit-ups test and score was recorded in number of sit up performed in one minute. Muscular strength and endurance of arms muscles was measured by using push-ups test and score was recorded in number of push-ups performed in one minute. Flexibility was measured by sit and reach test and the score were recorded nearest to 0.5 inches.

The topic of this research seems to be justified and thought desirable to undertake for study with the following objectives.

- To measure the health-related physical fitness components of 11 to 13 years old school going boys from Rural, Tribal, and Urban school in Nashik District.
- To prepare the appropriate norms of health related physical fitness components (Body Height, C.V. Endurance, Muscular Strength & Endurance, and Flexibility) of 11 to 13 years old school going boys.
- To compare (age, Rural, Tribal and Urban) performance of the subjects in health-related physical fitness components.

**Morphological Variable:**

Body weight, standing body height, % body fat and Body Mass Index measurements were taken for it.
• **Physical fitness Variables:**

Cooper’s 9 minute run or walk test, push-ups test, 1 minute bent knee push-ups, 1 minute bent knee sit-up, ACSM’s Sit and Reach test, body Height and body weight.

The data was analyzed using the descriptive statistical techniques (Mean, Median, SD, Skewness and Kurtosis). ANOVA were employed to compare the performances of age groups. A statistical software SPSS was used for the data analysis.

**5.2. Conclusion**

With the help of present investigation the following conclusion are drawn.

- The data collected from 9000 subjects of 67 different schools and tested statically showed normal distribution for entire population was of each age group school Boys. Therefore the parametric statistics is applied instead of non parametric statistics. With the application of parametric statistics the norms were prepared for entire population of each age group.

- The values of variability, Skewness and Kurtosis of all the selected attributes of Health Related Physical Fitness Factors indicate that the data was well distributed and resides in the normal range of a probability.

- There are significant differences in almost all the variables of Health Related Physical Fitness between 11+ to 13 years Boys’ age groups and therefore, separate norms have been established.

- Percentile norms of Health Related Physical Fitness variables were found gradable.

- There is significant difference in body height, body weight, BMI,% body fat, Cardiovascular Fitness, Muscular Strength and Endurance of shoulder and arms, Muscular Endurance of abdominal muscle and Flexibility of trunk and posterior thigh muscle of Boys each age group between 11 to 13 years from school in Rural, Tribal and Urban area in Nasik District.

- The Boys belonging to the age group 11 to 13 years showed similar type of differences in almost all the variables as described in the previous chapter.

- In age-wise comparison, significant differences in almost all variables are evident among the Boys of 11 to 13 years age groups.
• Area wise Comparison i.e. Rural, Tribal and Urban of performance in Morphological Variable was higher in Urban area than other area in all age groups i.e.11 years, 12 years and 13 years school Boys. Muscular endurance and Flexibility in Rural area was higher than other area i.e. Urban and Tribal in all age groups i.e.11 years, 12 years and 13 years school Boys and it was also concluded that Cardiovascular Fitness, Muscular strength and Endurance in Tribal area was higher than other area i.e. Rural and Urban in all age groups.

• In age-wise Comparison, the mean performance of body Height, body weight, BMI, body fat percentage, Cardiovascular Fitness, Muscular strength and Endurance and Muscular endurance of 13 year school Boys were higher than other age groups school Boys i.e. 12years and 13 years. It was lower in 11 year age group school Boys. But in Rural, Tribal and Urban area, the mean performance of Flexibility in 13 year age group was similar and greater than 11year and 12 year school Boys.

• Thus, Rural, Tribal as well as Urban Boys had different status of various components of health related physical fitness and morphological variables. Therefore, almost all the null hypotheses (HO₁) formulated have been refuted.

5.3. Recommendations

After investigating the norms and after comparative study of descriptive analysis, the following recommendations regarding the implications and suggestions for further studies are made.

• The study will ensure a uniform and complete pattern of age group wise, district wise, and state wise implication of Health Related Physical Fitness of 11 to 13 years Boys of Nasik district.

• The selected physical fitness variables are administered for complete description of Health Related Physical Fitness. Hence, the physical education teacher of different schools will use them for evaluating the Health Related Physical Fitness status of 11 to 13 years school Boys.

• The prepared norms are useful for all schools in Nasik district. This will help to evaluate the effects of implementation of school physical education programmes in terms of students’ status on health related physical fitness.
- The norms prepared in the present study have to be adopted by the Zilla Parishad of Nasik and the State Government Authorities, Maharashtra and include in the syllabus of school curriculum for evaluating the Health Related Physical Fitness for 11 to 13 year students.

- Similar norms should be prepared for girls for the selected Health Related Physical Fitness items.

- The present study may be replicated with subjects of 15 years, 16 years, 17 years and 18 years students of school.

- This study helps to adopt new strategies in training, coaching, and teaching so as to enhance the efficiency to enrich health related physical fitness and associated body composition of students.

- The study is prepared for selecting potential sportsman for participation at different level of competition.

5.4. Contribution to the Knowledge

- This study has a great impact in the field of physical education at the school level. The result of this study will help various academic and sports agencies in different manners.

- Suggestions from this study also guide the teacher education colleges to modify their curriculum according to current needs of the society.

- On the basis of the diagnostic tools (norms), Govt. can take immediate intervention to launch a suitable state Health Related Physical Fitness among the school students.

- This study throws a light on the importance of active lifestyle and prevention of lifestyle diseases, thereby motivating the parents, teachers & the students in adopting an active lifestyle.