CHAPTER-III

METHODOLOGY
Survey method is used in the present study to study the relationship among physical fitness, psychological parameters and socio-economic factors. The various steps in the methodology followed are as follows: selection of samples, selection of variables, orientation of subject, test administration, collection of data, and statistical treatment of collected data.

**Selection of Sample or Subjects:**

The problem was to analyse the low and high physical fitness and selected psychological parameters of secondary school children. The subjects were randomly selected from 8th to 10th standard within the age group of 12 to 15 years. Since the study also considered the socio-economic background of the children, subjects were selected from three different types of school namely Government, Corporation and Private schools. 100 students (50 girls and 50 boys) were randomly selected from each school for the purpose of the study.

**Selection of Variables:**

The investigator is highly interested in observing the effect of selected psychological parameters and socio-economic status on
children's physical fitness. In the present study, the investigator has selected the following variables:

1. Physical Fitness variables.
2. Psychological parameters.
3. Socio-Economic status based on the three categories of schools.

**Physical Fitness:**

A.A.H.P.E.R youth fitness test is selected to assess the high and low physical fitness of the selected subjects. The test was devised by American alliance for health, physical education and recreation in Washington. It consists of seven items to measure various components of physical fitness namely (1) a) Pull-ups, b) Flexed arm hang, (2) Standing broad jump, (3) Bent-knee sit up, (4) Shuttle run; (5) 50-yard dash; (6) 600 yard run and walk and (7) Softball throw.

**Psychological Parameters**

Dr. N.S. Chouhan, Dr. Dhar U and Dr. Y.K Singh designed the socio-genic need satisfaction scale which consisted 40 items measuring four variables of positive need satisfaction and four variables of negative need satisfaction. The investigator felt the socio-genic need satisfaction scale would best suit his study, since it would help to have a better interaction with the children. This scale measures acceptance, co-operation, identification, dominance, rejection, isolation, differentiation and submission.
Socio-economic Status

It is a known fact that socio-economic background plays a major role in the personality dimension of an individual. The social class and economic background to which a child belongs may influences the physical and psychological performances of an individual. In the present study the investigator has considered the socio-economic background of the students in terms of parent's occupation and education.

Orientation of the subjects:

The subjects assembled in a classroom and then the researcher explained them the nature and purpose of study, the tests designed, the method to perform and the answer the questionnaire.

Administering the Questionnaire and Tests:

The subjects were asked to assemble in a classroom. The S.N.S. Scale was also translated to the Kannada Version. The investigator distributed the questionnaire both in Kannada and English and read out all the instructions, he also explained them to the children. Each and every question was read out and explained so that the subjects could easily understand the same. The subjects answered while the researcher clarified all the doubts of the subjects whenever asked for. The duly answered questionnaires were collected back and scored as per the methods of respective scales.
Administering the tests

A.A.H.P.E.R Youth fitness test

The AAHPER youth fitness test was devised by American Alliance for health, physical Education and Recreation in Washington. This test consists of seven test items which is adopted in this particular study to measure high and low physical fitness of Boys and girls of Government, Corporation and Private School. The test items administered are as given in Table No.3.1.

Table No. 3.1
Physical Fitness Test Items

<table>
<thead>
<tr>
<th>Sl. No.</th>
<th>Name of the Test Items</th>
<th>Physical fitness components</th>
<th>Sex</th>
</tr>
</thead>
<tbody>
<tr>
<td>1a</td>
<td>Pull-Ups</td>
<td>Arm and Shoulder Strength</td>
<td>Male</td>
</tr>
<tr>
<td>1b</td>
<td>Flexed- Arm Hang</td>
<td>Arm and Shoulder Strength</td>
<td>Female</td>
</tr>
<tr>
<td>2</td>
<td>Shuttle Run</td>
<td>Speed and Agility</td>
<td>Male and Female</td>
</tr>
<tr>
<td>3</td>
<td>Standing Broad Jump</td>
<td>Explosive strength for legs</td>
<td>Male and Female</td>
</tr>
<tr>
<td>4</td>
<td>Bent-knee-sit up</td>
<td>Abdominal Strength</td>
<td>Male and Female</td>
</tr>
<tr>
<td>5</td>
<td>50 Yard Dash</td>
<td>Speed</td>
<td>Male and Female</td>
</tr>
<tr>
<td>6</td>
<td>600-yard Dash</td>
<td>Cardio-vascular endurance</td>
<td>Male and Female</td>
</tr>
<tr>
<td>7</td>
<td>Softball throw</td>
<td>Explosive Strength of arms</td>
<td>Male and Female</td>
</tr>
</tbody>
</table>

1(a). Pull-ups:

**Purpose:** To measure arm and shoulder girdle strength and endurance.

**Subject:** Boys of 12 to 15 years of age.

**Equipment and Facilities:** A horizontal metallic bar 1.5 inches in diameter is used.

**Person’s administering test:** The investigator himself along with two trained testers and an helper administered the test. The investigator supervised the testers one among them counted the score, the other recorded it and the helper assisted them.

**Administration of test:** Students were asked to stand one behind other, the bar was so adjusted that the feet of the tallest boy could not touch the ground while performing the test. On the signal of starting the subject starts performing pull ups. Starting with the hanging position with forward grip, chins himself as many times as he can. In the process the subject has to pull himself up so that his chins will be even with his hands and lower himself until his arms become straight. One trial was permitted to each student.

**Rules applicable:**

1. With the start signal the subject should go on for hanging position.

2. The subject is not permitted to kick, jerk or use a skip motion.

3. If the subject is not able to pull up his body all the way up or straighten his arms completely while coming down the same should be counted as half-a-pull up and only four half counts is permitted for one subject.

**Scoring:** One point is counted for each pull up correctly done by the subject.
11 Pull-ups (Straight arm hang position)

12 Pull-ups (Chinning-up Bar position)
1(b). Flexed-Arm hang:

**Purpose:** To measure arm and shoulder girdle strength.

**Subject:** Girls of 12 to 15 years of age.

**Equipment and facilities:** A stop watch and horizontal metallic bar of 1.5 inches in diameter is used.

**Person’s administering test:** Two trained testers administered this test. One tester saw the time and the other recorded the same.

**Administration of test:** Students were asked to stand one behind the other. The bar was adjusted approximately to a height of 7 feet and a chair was used to reach the position where the chin was above. The bar by holding an overhand grip. The elbows were flexed and chest close to the bar. The subject held this position as long as possible.

**Rules applicable:**

1. The time starts as soon as the subject took the hanging position.

2. The time was stopped when

   a) The subject's chin touched the bar.

   b) The subject's head tilted backward to keep chin above the bar.

   c) The subject's chin fell below the level of the bar.

**Scoring:** Time, to the nearest second as long as the hanging position held is recorded.
2.1 Flexed-arm hang position (for Girls)
2. Shuttle Run

**Purpose:** To assess speed and agility

**Equipment and facilities:** Two wooden blocks of 2x2 inches. A distance of 30 mts marked on a track and stop watch.

**Persons administering test:** Three trained persons one to start, other to record the time and one more to assist them to start.

**Administration of test:** Two parallel lines were drawn a feet apart, the subjects were to stand in a single file one behind the other. The wooden blocks were placed behind one of the lines. On the signal to 'start' given by the tester the subject would start behind the line and carry the wooden blocks to be placed on the opposite side, one at a time. The time is recorded when both the wooden blocks were placed behind the parallel line and the subject would run back to where he had started. Two trials were allowed with a period of rest in-between.

**Rules to be followed:**

1. At the 'start' signal the subject could take one of the wooden blocks and run towards the parallel line.
2. The subject should carry only one block at a time.
3. The subject has to run back to the starting line after placing both the blocks.
4. The time stops only when the subject crosses back the starting line.

**Scoring:** Time taken to complete the event to the nearest second should be considered.
3. Standing Broad Jump:

**Purpose:** To assess the explosive strength (power) of legs.

**Subject:** Both boys and girls

**Facilities and Equipment:** A measuring tape and suitable floor.

**Persons administering test:** Three trained persons two to measure the distance and one to record the same.

**Administering test:** The subject has to stand behind a starting line being marked. Whenever he feels that he can take off, the subject gets back to crouching position and with full force swinging his arms forward, jumps as far as possible and lands on both the feet together.

**Rules:**

1. Before take-off the subject should stand behind the line marked for that purpose.
2. Both take off and landing should be on both the feet simultaneously.

**Scoring:** Distance to the nearest inch is considered from the take off to the closest heel position. The best of three trials is taken into account.
4.1 Standing Broad Jump (Crouch-Position)

4.2 Standing Broad Jump (Landing on both feet-position)
4. Bent-Knee-Sit up

**Purpose:** To assess abdominal strength.

**Equipments and facilities:** A mat and stop watch

**Persons administering test:** Two trained persons.

**Administering test:** The subjects had to take supine lying position on mat, knees should be bent and hands clasped behind neck. The exercise was performed with the help of a partner holding the ankles firmly on the ground. The subject had to lift his trunk, head and elbows in a curl motion, elbows touching knees and then going back to supine lying position. The partner also counted the number of situps done for the given time.

**Rules to be followed:**

1. The time started as soon as the subject took position.
2. Hands should be interlocked behind the neck.
3. Every time the subject comes back to supine lying position the elbows should flatten and touch the mat.

**Scoring:** Number of sit-up correctly performed in 30 secs.
5.1 Bent-knee sit-ups (Bent-knee lying position)

5.2 Bent-knee sit-ups (Curl-up motion-position)
5. 50-yard Dash:

**Purpose:** To assess speed

**Facilities and equipment:** 50 yard running area on a track and stop watches

**Person administering test:** Three trained people one to start and others to record the time.

**Administering the test:** The test was administered on two subjects simultaneously. The subjects stood behind the starting line and at the command “on your mark,” “set,” “whistle,” the subject started running and the time was immediately started at the whistle and stopped when the subjects crossed the finishing line.

**Rules:**

1) The subject should not start before the command.

2) The time starts with the whistle and ends with the subject crossing the finishing line.

**Scoring:** Scoring was recorded to the nearest one tenth of a second
6. 600 Yard Run-walk:

**Purpose:** To measure cardio-vascular endurance

**Subject:** Both boys and girls.

**Age group:** 12 to 15 years of age.

**Facilities and Equipment:** A 400 m standard track, stop watches and whistle.

**Persons Administering the test:** Nine trained testers, one to be the starter, one to write down time and seven others to operate stop watches and report the time taken.

**Administering the test:** The pupils stand behind the starting line in group of seven at a time. At the signal “Ready” and whistle they start running and in time finish the 600 yard distance. Time taken to finish the distance is recorded to the nearest second.

**Rules:**

1. The pupils should stand behind the starting line before starting the event

2. The pupils can also walk in between running whenever they feel like walking.

**Scoring:** Time taken to finish is recorded in minutes and nearest seconds.
7 1 600-yard dash (Run and Walk) (Starting position)
7. Softball throw:

**Purpose:** To assess explosive strength of arms.

**Subject:** Both boys and girls.

**Age group:** 12 to 15 years of age.

**Facilities and Equipments:** A soft ball of 12 inches, a throwing zone of 6 feet.

**Person administering test:** Three trained person one to record the distance and other two to measure the distance.

**Administering test:** Two lines are drawn parallel and six feet apart which constitute a throwing zone. The Pupils are allowed to throw the given soft ball from within the throwing zone. The Pupils are allowed to do a warm up before throwing the ball. Each individual is given three chances and the best of three is taken into consideration.

**Rules:**

1. The pupils should throw the soft ball standing inside the throwing zone. They cannot step out of the zone while throwing the soft ball.

2. The pupils should throw the ball over hand.

**Scoring:** The distance covered in the best of three throws is recorded to the nearest foot.
8 | Softball-throw (Starting-position)
### Table No.3.2

**Table showing High fitness group (<\bar{X}+S.D.) and Low fitness groups (>\bar{X}-S.D.) of different schools**

<table>
<thead>
<tr>
<th>Gender</th>
<th>Govt. School</th>
<th>Corporation School</th>
<th>Private School</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>(&lt;\bar{X}+S.D.)</td>
<td>(&gt;\bar{X}-S.D.)</td>
<td>(&lt;\bar{X}+S.D.)</td>
</tr>
<tr>
<td>Boys</td>
<td>22.4</td>
<td>6.0</td>
<td>23.2</td>
</tr>
<tr>
<td>Girls</td>
<td>28.2</td>
<td>9.4</td>
<td>17.8</td>
</tr>
</tbody>
</table>

After collection of the data, the same was standardized as per the norms of A.A.H.P.E.R Youth fitness test and the average of scores and its deviation was calculated statistically. The mean and standard deviation of each school were added separately to find out high fitness group. In case of Government School boys who ever scored above 22.4 in all seven items were considered as high fitness group. In case of Government School Girls who ever scored above 28.2 were considered as high fitness group. In case of corporation school boys, whoever scored above 23.2 were considered as high fitness group. Among Corporation school girls, whoever scored above 17.8 were considered as high fitness group. Among private school boys whoever scored above 25.7 were considered as high fitness group and among private school girls whoever scored above 19.5 were considered as high fitness group.
To classify low fitness group standard deviation were subtracted from the average scores of respective groups. Among Government School Boys whoever scored less than 6.0 were considered as low fitness group. Among Government School Girls whoever scored less than 9.4 were considered as low fitness group. Among corporation school boys whoever scored less than 5.6 were considered as low fitness group. Among corporation school girls whoever scored less than 5.4 were considered as low fitness group. Among private school boys whoever had scored less than 7.9 were considered as low fitness group. Among private school girls whoever had scored less than 6.1 were considered as low fitness group as mentioned in the above Table No.3.2.
Assessment of Socio-genic Need satisfaction scale:

The test is designed to measure eight psychological parameters. The scale consisted of 40 items five items belonging to each parameter. The eight areas on which the 40 items were designed basically were of two dimensions. (i.e. positive and negative)

Each one of the two dimensions has five areas to be ranked in view of their magnitude of satisfaction or painful experiences. Ranking is to be done on a six point scale. For example it is 5 4 3 2 1 0 and the degrees are too much, much, average, less and too less, not at all. Among the 40 items the items included in each parameter is as shown in the Table No.3.3

Table No.3.3

<table>
<thead>
<tr>
<th>Showing Item No belonging to particular parameter</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acceptance</td>
</tr>
<tr>
<td>Co-operation</td>
</tr>
<tr>
<td>Identification</td>
</tr>
<tr>
<td>Dominance</td>
</tr>
<tr>
<td>Rejection</td>
</tr>
<tr>
<td>Isolation</td>
</tr>
<tr>
<td>Differentiation</td>
</tr>
<tr>
<td>Submission</td>
</tr>
</tbody>
</table>
The maximum points that can be scored in each parameter across five items and is 25 (for example in acceptance). The minimum point that can be scored is 'zero'.

After allotting the points, score in each item belonging to particular parameter, the total points scored in each parameter among 5 items are taken into account and the average score is calculated for the whole group. Thus the total score obtained was used for further statistical treatment.
Assessment of Socio-Economic Status:

The collection of data regarding the socio-economic status of the pupil was also a part of investigation in the present study. Hence the investigator took the following measures.

1. The front page of the questionnaire consisted of places specially designed to fill up the various details necessary for the study.

2. A separate column was designed to fill in the details of both father's and mother's education.

3. A separate column was designed to fill in the details of both father's and mother's occupation or types of job.

The education of the parents of children belonging to three different schools together were classified into five group as follows:

a) parents who did not have any form of formal education (illiterates).

b) Parents who were educated only upto the middle school.

c) Parents who were educated only upto the High School

d) Parents who were educated only upto the Pre University level.

e) Parents who were educated only upto Graduation.

f) Parents who did their post graduation.
The occupation of the parents of children belonging to three different schools together were classified into three categories namely; (a) unorganised; (b) Organised and (c) Professional

a) **Unorganised** : Parents working as Coolie, vegetable vendors, flower vendors, Dhobi, maids etc. were considered under unorganised group.

b) **Organised group** : Parents employed in Govt. Sectors, factories, offices, private firms etc., were considered under organised group.

c) **Professional** : Parents who were doctors, teachers, lecturers, engineers, artists and those who had their Pvt. business enterprises were considered under professional groups.