

Chapter - III

Method and Procedure

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The conceptual framework within which the study was conducted has been explained in the sequence of; design of the study, selection of the subjects, selection of the variables, instruments/tools used, procedure of the data collection and statistical technique employed.

DESIGN OF THE STUDY

The study was of analytical nature which was designed to assess the health status, attitude towards physical activity, intelligence and academic consistency of sports persons and non-sports persons' of graduation level both male and female students.

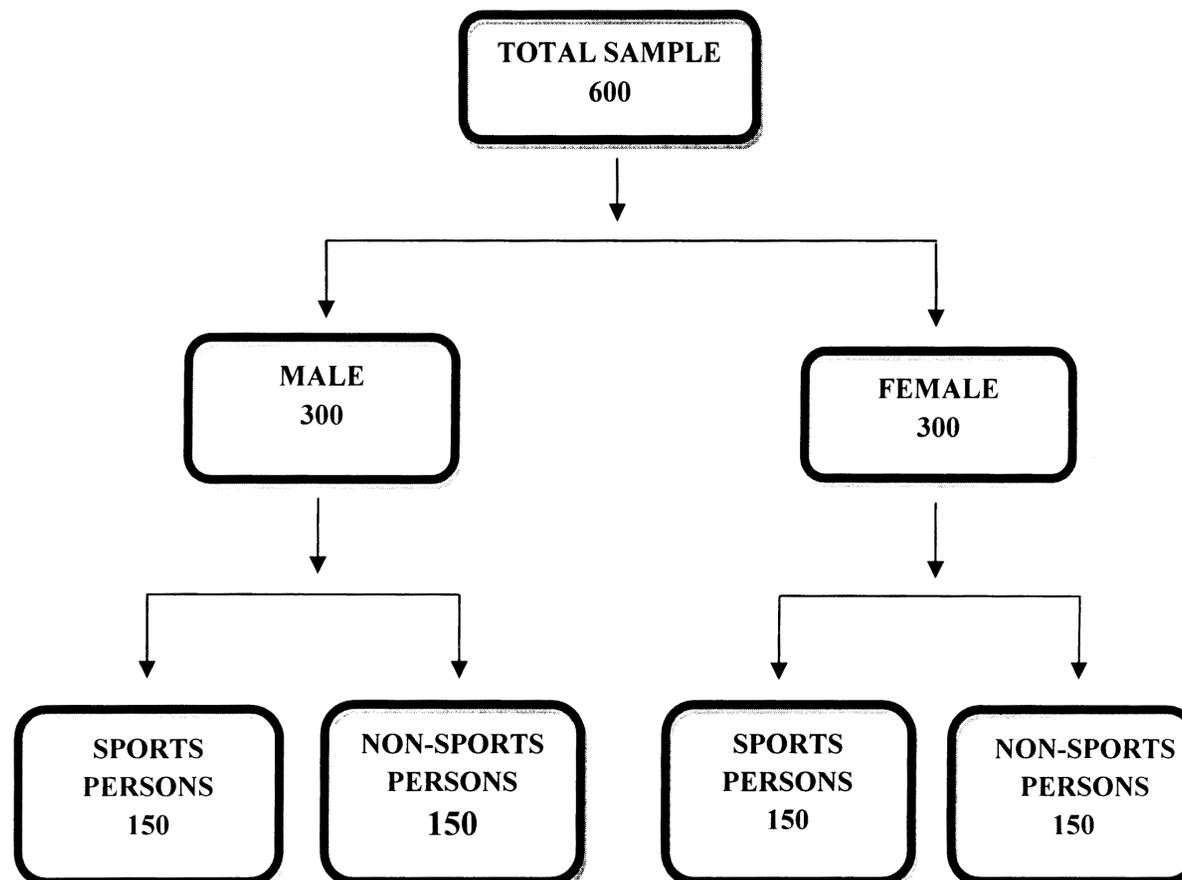
SELECTION OF THE SUBJECTS

A sample was truly representative of population which was characterized without any bias, so that it may result in valid and reliable conclusion. The sample consisted of 600 male and female students of Lovely Professional University Jalandhar. The age of the subjects ranged between 19-25 years. The subjects were purposely selected and were further subdivided into sports persons and non-sports persons on the basis of their sports participation of at-least inter college/state level competitions in their respective games.

A total sample of 600 students was further divided into male and female students with 300 subjects in each category, which were again sub divided into sports persons and non sports persons with a sample of 150 in each group.

Figure 3.1

Sampling Design



SELECTION OF VARIABLES

1. Health status.
2. Attitude towards physical activity.
3. Intelligence.
4. Academic consistency.

INSTRUMENTS/TOOLS

A research tool plays a major role in any research as it is the sole factor in determining sound and accurate results. The following tools were used by the investigator to collect the data.

1. Health status was assessed with the help of Health and Wellness Questionnaire developed by Barker Ray University of South California (2001).
2. Attitude towards physical activity was measured with the help of Physical Activity Attitude scale developed by Bhullar (1976).

3. General intelligence level was assessed with the help of Raven's Standard Progressive Matrices (1977).
4. Academic marks of the preceding university's final examination, by means of interview and cross checking of documents were collected to assess the academic consistency of the students.

HEALTH STATUS

Questionnaire of Health and Wellness developed by Barker Ray, University of South California, 2001 was used for collecting the data on health status of the subjects. The questionnaire was further divided into six different categories with each category consisting of ten statements.

- A. Emotional health.
- B. Fitness and body care.
- C. Environmental health.
- D. Stress.
- E. Nutrition.
- F. Medical self responsibility.

Reliability

Reliability of the questionnaire was calculated in three different ways for knowing (i) dependability i.e. short term test-retest correlations; (ii) stability i.e. retest after a longer interval and (iii) internal consistency, i.e. split half correlations. The final correlation value obtained of all the six sub domains ranged from .68 to .81.

Validity

In order to find out the item validity, item relation with total health status scores was computed. All the items had shown high coefficient of correlation ranging between .65 to .74 when compared with other tests or scales.

Scoring Procedure

Responses of the questions may be given in the three different options as;-

- A. Always = 3 points.
- B. Occasionally = 2 points.
- C. Never = 1 point.

After getting the total of ten different statements of each category it can be compared with the key i.e. 0-22 needs improvement, 23-27 good and 28-30 denotes the excellent score.

ATTITUDE TOWARDS PHYSICAL ACTIVITY

Physical Activity attitude Scale developed by Bhullar (1976) was used for collecting the data on attitude towards physical activity of the subjects. The attitude scale represents seven broad sub-dimensions of Physical Activity:

- A. Physical activity and its place in University Programme.
- B. Physical activity as social experience.
- C. Physical activity for health and fitness.
- D. Physical activity as pursuit of vertigo.
- E. Physical activity as an aesthetic experience.
- F. Physical activity as Catharsis.
- G. Physical activity as an ascetic experience.

The present physical activity attitude scale has ten statements in each dimension. So, there are total 70 statements. Each statement is accompanied by six response categories.

Reliability

To find out the reliability of the attitude scale Bhullar (1967) tested the scale on fifty students and after a gap of four weeks it was again retested. Pearson 'r'

between the two sets of scores was worked out for the entire scale which was .87 showing that the scale enjoys a high reliability.

Spilt-half Reliability

Spilt-half reliability was used to find out the reliability of the seven sub domains for the attitude scale. The results are as follows:

Table 3.1 (a)

Spilt-half Reliability of Attitude Towards Physical Activity Scale

| Sr. No | Sub Domains | Reliability |
|---------------|--|--------------------|
| 1. | Physical activity and its place in University Programme. | .70 |
| 2. | Physical activity as social experience. | .68 |
| 3. | Physical activity for health and fitness. | .87 |
| 4. | Physical activity as pursuit of vertigo. | .67 |
| 5. | Physical activity as an aesthetic experience. | .84 |
| 6. | Physical activity as Catharsis. | .66 |
| 7. | Physical activity as an ascetic experience. | .66 |

The value of spilt half reliability coefficient for the seven sub domains of the attitude scale as entered in the table ranged from .66 to .87 which speaks of high reliability of the sub domain from the point of view of internal consistency and stability of the sub scales. Especially in view of the fact that majority of the attitude scales used by the foreign authors had reliability coefficient close to the values obtained in the present study. (Kenyon, 1968) found that the Hoyt reliabilities ranged from .68 to .89 of six scales for assessing attitude towards physical activity. (Edginton, 1966) reported reliability coefficient by spilt half method of his Attitude scale of physical education as .86 (Adams and Paul, 1970) of their physical education attitude scale reported the reliability of the equivalent forms that were constructed with the average cluster correlation technique of statement selection equal to .66 and that of Likert's differentiating technique equal to .82.

Factorial Validity

In the absence of similar scale for the use in Indian conditions it could not be thought of establishing concurrent validity of physical activity attitude scale. Alternatively, factorial validity was considered to be the most appropriate and convenient mode of validating the scale. The inter correlation matrix of seven sub domains of the scale based upon the scores of 50 students was subjected to factorial analysis by using principle axes method followed by Varimax rotation of factors.

Method of the Scoring

Scoring was done on the basis of “scale product technique” by giving weight-age for each response category in the Likerty fashion i.e. 3, 2, 1 and -3, -2, -1.

- +3 = strongly agree
- +2 = mildly agree
- +1 = agree
- 3 = strongly disagree
- 2 = mildly disagree
- 1 = disagree

Positive statement is weighted so that a favourable response will result in higher score than an unfavourable one. For negative statements, the entire procedure is reversed. The overall scores of all the seven dimensions of attitude towards physical activity scale were taken as the score of each subject.

INTELLIGENCE

For the assessment of Intelligence among the sports and non-sports persons Raven’s Standard Progressive Matrices (SPM) was used which is a nonverbal evaluation tool designed to measure an individual’s ability to apprehend relationship between geometric figures and designs and to perceive the structure of the design in order to select the appropriate part (from several) for the completion of each pattern or system of relations. Raven’s (1977) state: “SPM is a test of person’s capacity at the time of the test to apprehend meaningless figures presented for his observation, see the

relations between them, conceive the nature of the figure completing each system of relations presented and by so doing, develop a systematic method of reasoning.

The scale consists of 60 problems divided into five sets of 12 in each set the first problem is nearly as close as possible to the other, is self evident. The problems which follow become progressively more difficult. The five sets provide five opportunities for grasping the method and five progressive assessments of a person's capacity for intellectual activity. To ensure sustained interest and freedom from fatigue, the figures in each problem are bodily presented, accurately drawn, as far as possible, pleasing to look at.

The author regards this test as being a test of innate educative ability and a measure of the general factor (g) of intelligence. The test is intended to evaluate the person's ability to discern and utilize a logical relationship presented by non verbal materials. The problems require, in varying degrees, analytical and intriguing operations of the kind called "insight through visual survey." Verbalisation and abstraction of relationships are also possible factors if the subject is able to analyse and synthesise by these means. Factorial analysis suggests that the matrices tests are measures of largely a "general factor", with a small loading of spatial perception factor. Raven interprets the first of these factors as being essentially the same as Spearman's education of relations and education of correlates. The SPM has been extensively used in research programmes and successfully administered to variety of groups.

Reliability

Numerous reliability coefficients reported by Raven, vary from .80s to the low .90s. Coefficient reported by the other investigators, using the split half method, ranged from .70s to .90s. "The differences" says Freeman (1963), "in correlation are attributable to differences in the constitution of groups, age range, mean and range of ability, number in the sample and socio economic and educational levels."

Validity

Validity of SPM tests has been studied in a variety of usual ways. When the Standiford-Binet test was used as the criterion, correlation varied from .50s to .91.

Most of the coefficient of correlation with these two widely used criteria was in the .60s and .70s. When the SPM was correlated against verbal and non-verbal group scales it came closer to measuring the forms of abstract and conceptual intelligence rather than functions involved in other non-verbal scales.

In evaluating responses, the manual for the SPM was followed. However, no consideration was shown to the individual's score on each of the five sets separately. His/her total score was considered adequate to reveal his/her intelligence in general, when statistically analysed. Comparisons have been made by following the norms given by the author i.e., the 50th percentile score for the age group is 44 (Ravens, 1977). The median score indicates that those scoring above this point are more intelligent than those scoring below this point are more intelligent than the average population and those scoring below this, may be considered as below average in intelligence.

This test was selected mainly for two reasons: firstly, it is a test of general intelligence and is a cultural fair" and secondly, it is very easy from the point of view of administration and scoring.

ACADEMIC CONSISTENCY

Apart from the data collected through the administration of various tests, marks of previous university examination were recorded. These marks were converted into percentage for ensuring uniformity of measurement.

PROCEDURE FOR DATA COLLECTION

The investigator himself with the help of an assistant collected the data. He (investigator) approached the authorities of Lovely Professional University (LPU) to seek their cooperation in the collection of the required data. It was decided and planned to collect the data during the free period of the students so that their studies might not get affected. The environment and testing conditions were made as conducive as possible. A group of 35 to 40 subjects was seated comfortably in a room where there was no noise and interference from outside. Proper utilization of technological instruments (projector) was done for higher level of clarity among the students.

Before the actual tests were administered, the subjects were acquainted with the purpose of the investigation. This was done to establish rapport with the subjects and to make them feel at ease and relaxed. They were also informed about the general nature and purpose of each test. They were assured that the information collected from them would be kept strictly confidential. They were also told about the importance of the true and correct information to elicit the right and real answer from them.

After ensuring the cooperation of the subjects they were administered with all the four tests, one after the other with a gap of comfortable duration in the tests. In the first sitting they were asked to give their percentage of marks at the graduation level and were administered with the Physical Activity Attitude Scale. In the second sitting they were given Raven's Standard Progressive Matrices to assess their intelligence. In the third sitting Health and Wellness questionnaire was applied. Before the subjects were asked to respond to the test items, instructions as mentioned in the tests manual, were read out to them and they were also requested to go through the instructions printed at the cover page of the test. Then the subjects were allowed to respond to the test items. After the subjects completed the items of the test, the investigator screened their response sheets primarily to find out the incomplete ones, if any sheet was found incomplete it was got completed from the concerned subjects. As this procedure was found convenient, easy and effective, the same procedure was repeated throughout the duration of the data collection.

SCORING OF RESPONSE SHEET

The scoring of the response sheets of all the subjects for the four tests was done with the help of scoring keys prepared for the tests or with the assistance of instructions mentioned in the test manual separately. It was done strictly according to the instructions given by the authors of the tests in the manual. The scores obtained by each subject in all the four tests were worked out and recorded on the specific space provided for the purpose at the cover page.

STATISTICAL TECHNIQUES

After the successful collection of the data, the analysis of the variables was done by using various prescribed statistical techniques. Mean, standard deviations, and standard errors of all the variables taken in the present study were calculated for sports

and non-sports persons, male and female students. 't' test was applied in order to find out the differences between two groups of all the variables. By the application of Pearson product moment correlation (r) the researcher was able to assess the amount of relationship among health status, attitude towards physical activity, intelligence and academic consistency of male and female sports and non-sports persons. Statistical package for social sciences (SPSS) was employed to obtain the exact statistical conclusions.