



## Comparative analysis of anxiety, socio economic status and strength (leg strength) variables among athletes and non athletes

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### Abstract

Independent randomized research design was used for this study, as the subjects were selected randomly from four independent groups. The responses obtained through standardized questionnaire to measure all the four groups on selected variables, anxiety, socio economic status, leg strength, were collected. Fifty athletes and fifty non athletes studying in different colleges in Andhra Pradesh were selected for this study. The age group of the subjects was between 18 to 25 years. The collected data were subjected to statistical treatment to find out any differences between the groups in the dependent variables selected.

**Keywords:** anxiety, socio economic status, leg strength

### Introduction

Today, sport and exercise psychologists have begun to research and provide information in the ways that psychological well-being and vigorous physical activity are related. This idea of psychophysiology, monitoring brain activity during exercise has aided in this research. Also, sport psychologists are beginning to consider exercise to be a therapeutic addition to healthy mental adjustment.

Moreover, the twentieth century is a revolt against the traditional practices prevalent in the past. To keep pace with the fast and vast changes that are taking place in the various disciplines, there is a tremendous demand and responsibility cast on the training system to meet the challenges of preparing men and women to achieve tasks with success and excellence. Sports is no exception to this and so emphasis is placed on psychological aspects of a player to attain success (Mohan et.al. 2005).

A sound body and a sound mind are man's most precious possessions. Man needs to participate in physical activities to develop his mind and body. The child first starts to move and gradually improves to run, throw, jump, climb according to its interest. So physical education is needed for each and every individual for a better growth and development. Physical fitness is the very basis of our daily life and a sick nation cannot produce healthy attitudes and economically productive capacities.

### Importance of Athletics

The physical educationist, coaches and sports scientist of today are becoming more aware of the scientific information related to the athletes potential proficiency in sports. Research in Physiology, nutrition, psychology, biochemistry and physics have contributed much to the performance level to athletes in various competitive sports of today. In recent years the sports scientist have taken interest in the analysis of human movement in various sports activities making use of the laws of physics. (Davis, B. et.al. 2000)

“The scientific minded youth of today are ready to accept the truths of mechanics and certainty, the subject as applied to athletics is of considerable interest to young people. In the teaching of skill on the sports ground, in the gymnasium or in the swimming pool, mechanical explanation should be used with discretion.” (J. Arlott, 1975)

### Psychology

Psychology is an academic and applied discipline involving the scientific study of mental functions and behavior. Psychologists study such phenomena as perception, cognition, emotion, personality, behavior, and interpersonal relationships. Psychology also refers to the application of such knowledge to various spheres of human activity, including issues related to everyday life (e.g. family, education, and employment) and the treatment of mental health problems. Psychologists attempt to understand the role of these functions in individual and social behavior, while also exploring the underlying physiological and neurological processes. Psychology includes many sub-fields of study and applications concerned with such areas as human development, sports, health, industry, media, and law.

### Need of the Study

In the recent years, a great deal of attention has been paid to compare the variations in the behaviourism, humanism and cognitivism of man on his/her psychological factors along with physical fitness and motor fitness variables. Further, there seemed to have differences among athletes and non athletes in their socio economic status. To find out the differences among athletes and non athletes' psychological, sociological and motor fitness variables, this research was undertaken.

### Objectives of the Study

The objective of this study was

- a. to find out the status of athletes and non athletes in selected psychological variables, sociological and motor fitness variables, and
- b. To compare the selected variables between athletes and non athletes to find out whether any significant differences existed between the two groups of students.

### Statement of the Problem

The purpose of the study was to make a comparative analysis of anxiety, socio economic status and strength (leg strength) variables among athletes and non athletes.

### Hypotheses

It was hypothesized that:

1. There will be no significant difference in anxiety between athletes and non athletes.
2. There will be no significant difference between men athletes and men non athletes in anxiety.
3. There will be no significant difference between women athletes and women non athletes on anxiety.
4. There will be no significant difference between men athletes and women athletes in anxiety.
5. There will be no significant difference between men non athletes and women non athletes in anxiety.
6. There will be no significant difference in socio economic status between athletes and non athletes.
7. There will be no significant difference between men athletes and men non athletes in socio economic status.
8. There will be no significant difference between women athletes and women non athletes on socio economic status.
9. There will be no significant difference between men athletes and women athletes in socio economic status.
10. There will be no significant difference between men nonathletes and women nonathletes in socio economic status.
11. There will be no significant difference in leg strength between athletes and non athletes.
12. There will be no significant difference between men athletes and men non athletes in leg strength.
13. There will be no significant difference between women athletes and women non athletes on leg strength.
14. There will be no significant difference between men athletes and women athletes in leg strength.
15. There will be no significant difference between men nonathletes and women nonathletes in leg strength.

### Significance of the Study

1. The present study would acquaint the physical education administrators with the psychological factors anxiety, stress and aggression among athletes and non athletes.
2. It would facilitate to find out the differences among the two groups of students.
3. It would facilitate to find out the whether these groups of students have any significant differences in socio economic status.
4. This research would facilitate to find out the differences between athletes and non athletes on selected motor fitness variables, strength.

5. The results of the study would add further knowledge to the existing literature of psychology, socio economic conditions and motor fitness variables.
6. The findings of the study would provide a guideline to the future research investigators in psychology, sports psychology and sports sciences to conduct further research in this field.

### Delimitations

The study is delimited to the following independent variables:

- a. Anxiety
  - b. Socio economic status
  - c. Strength (Leg Strength)
- Fifty athletes and fifty non athletes studying in different colleges in Andhra Pradesh were selected for this study.
  - The age group of the subjects was between 18 to 25 years.

### Limitations

The study was limited in the following respects and this limitation would be taken into consideration while interpreting the results;

1. The athletes were under different training methods depending upon their game. The effect of training were not considered in this study.
2. Heredity and environmental factors which contribute to psychological factors have not been controlled.
3. The scholar confined himself only to the college students who are studying in different colleges in Andhra Pradesh.

### Definition of Terms

#### Sports Anxiety

Anxiety is a psychological factor. Anxiety differs from arousal in that it encompasses some degree of co-alleviation and unpleasant emotional state. Thus the term anxiety is used to describe the combination of intensity of behavior and emotion. The direction, a characteristic of anxiety is negative in that it describes feelings that are unpleasant. (Kamlesh, 1993)

Anxiety is a complex emotional state characterized by general fear or forbidding usually accompanied by tension. It is related to apprehension and fear and is frequently associated with failure, either real or anticipated. (Frost, 1971) Sports Anxiety is defined as the state of anxiety shown by sportsmen before the competitions.

#### Strength

According to Jenson and Fisher (1972) strength is the ability of the body or its segments to apply force. Strength is the ability of a sportsman to overcome resistance or to act against resistance. The strength is operationally defined as the number of pull ups performed and was measured as the total number of repetitions completed. Leg strength or explosive power is the ability to release maximum muscular force in the shortest time as in executing a standing broad jump. (Baumgartner, 1987).

#### Socio Economic Status

Socio Economic Status is defined as the position of an individual on a socioeconomic scale that measures such

factors as education, income, type of occupation; place of residence, and in some populations, ethnicity and religion. An individual's or group's position within a hierarchical social structure. Socioeconomic status depends on a combination of variables, including occupation, education, income, wealth, and place of residence. Sociologists often use socioeconomic status as a means of predicting behavior. Socioeconomic status (SES) is evaluated as a combination of factors including income, level of education, and occupation. It is a way of looking at how individuals or families fit into society using economic and social measures that have been shown to impact individuals' health and well being.

**Methodology**

**Selection of Subjects**

To facilitate the study fifty athletes (25 boys and 25 girls) and fifty non athletes (25 boys and 25 girls) from different college in Andhra Pradesh were randomly selected. The subjects were selected in the age group of 18 to 25 years. The requirements for the collection of data through administration of questionnaires were explained to the subjects so as to avoid any ambiguity of the effort required on their part and prior to the administration of the questionnaire. All the subjects participated in this study voluntarily and responded to the questionnaire without bias.

**Selection of Variables**

The research scholar reviewed the various scientific literatures pertaining to the selected psychological and motor fitness variables from books, journals, periodicals, magazines and research papers. Taking into consideration of feasibility criteria, availability of instruments and the relevance of the variables of the present study, the following variables were selected.

**Dependent Variables**

**Psychological Variables**

d. Anxiety

**Sociological Variable**

e. Socio economic status

**Motor Fitness Variables**

f. Strength (Leg Strength)

**Independent Variables**

1. Twenty five Athletes (Boys)
2. Twenty five Athletes (Girls)
3. Twenty five Non athletes (Boys)
4. Twenty five Non athletes (Girls)

**Research Design**

Independent randomized research design was used for this study, as the subjects were selected randomly from four independent groups. The responses obtained through standardized questionnaire to measure all the four groups on selected variables, anxiety, socio economic status, leg strength, were collected. The collected data were subjected to statistical treatment to find out any differences between the groups in the dependent variables selected.

**Criterion Measures**

By glancing the literature, and in consultation with professional experts, the following variables were selected as the criterion measures in this study.

Sports Competitive Anxiety Index (SCAI) authored by C. D. Speilberger (1976).

Socio economic status of the subjects were measured in terms of a questionnaire developed by Agarwal and others (2005).

Explosive strength was measured using standing broad jump test.

**Anxiety**

Anxiety was measured through the anxiety questionnaire. The anxiety questionnaire was designed to measure the degree of anxiety experience prior to the competition.

**Assessment of Socio Economic Status**

Questionnaire developed by Agarwal and others (2005) which is a standardized socio economic questionnaire was used for the purpose of this study.

The questionnaire consists of 22 questions seeking responses from the subjects on twenty two distinct socio economic factors. Based on the responses of the subjects, the scores were made out for the socio economic conditions of the subject. The score of the socio economic condition of the subject was the total score obtained for all the 22 statements.

**Standing Broad Jump**

To determine the leg strength of the subjects standing broad jump test was used.

**Equipment**

Tape to measure distance and an outdoor jumping pit

**Procedure**

The subject stood behind take off line with the feet placed several inches apart. Before jumping, the subject flexed the knees and swung the arms backward. The subject then jumped forward by simultaneously extending the knees and swinging the arms forward. Three trials were given. Measurement was taken from the closest heel mark to the take off line and the distance was measured to the nearest centimeter. (Yobu, 1988).

**Statistical Technique**

The purpose of the study was to make a comparative analysis of selected psychological, socio economic and motor fitness variables among athletes and non athletes. The collected data were compared between athletes and non athletes, boys and girls. Hence, the investigator analysed the mean differences between the groups on criterion variables, using students 't' test.

**Computational analysis using 't' results on anxiety**

The obtained data on athletes and non athletes were further divided into men and women. The data collected on anxiety were compared between the four independent groups.

**Table 1:** Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Athletes and Non Athletes on Anxiety

Group	Mean	MD	SD	SDM	t'
Athletes (N=50)	54.60		6.83		1.20
Non Athletes (N=50)	53.00	1.60	4.88	1.33	

Required table value 't' 0.05 (99),= 1.66

The above Table I shows the comparison of anxiety among athletes and non athletes. Table shows that the athletes mean values on anxiety was 54.60 and non athletes was 53.00 with mean difference of 1.60. The means values were subjected to statistical treatment using 't' test and the obtained 't' value of 1.20 was less than the required 't' value 1.66. Thus, it was proved that there was no significant difference between athletes and non athletes. The null hypothesis that "there will be no significant difference in anxiety between athletes and non athletes" was accepted. The obtained means were presented through bar diagram in Figure I for better understanding of the results.

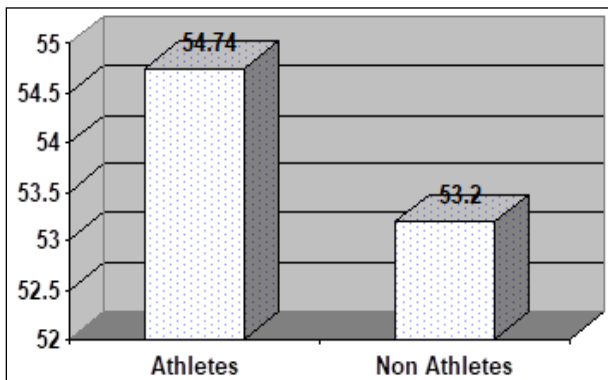


Fig 1: Bar Diagram Showing the Mean Values of Anxiety Athletes and Non Athletes

Table 2: Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Men Athletes and Men Non Athletes on Anxiety

Group	Mean	MD	SD	SDM	t'
Men Athletes (N=25)	55.64		7.64		1.65
Men Non Athletes (N=25)	52.96	2.68	2.70	1.62	

Required table value 't' 0.05 (1,49),= 1.677

The above Table II shows the comparison of anxiety between men athletes and men non athletes. Table II shows that the anxiety mean values of men athletes was 55.64 and men non athletes was 52.96 with mean difference of 2.68. The means values were subjected to statistical treatment using 't' test and the obtained 't' value of 1.65 was less than the required 't' value 1.677. Thus, it was proved that there was no significant difference between men athletes and men non athletes in anxiety. The null hypothesis that "there will be no significant difference between men athletes and men non athletes in anxiety" was accepted. The obtained means were presented through bar diagram in Figure 2 for better understanding of the results.

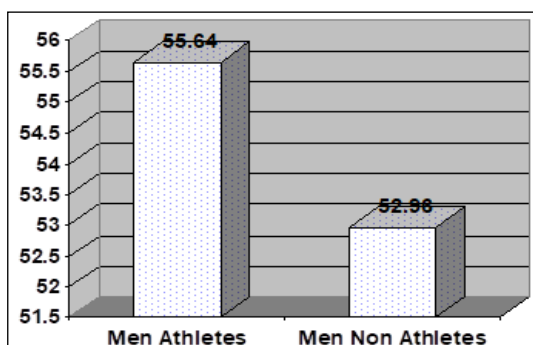


Fig 2: Bar Diagram Showing the Mean Values of Anxiety Men Athletes and Men Non Athletes

Table 3: Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Women Athletes and Women Non Athletes on Anxiety

Group	Mean	MD	SD	SDM	t'
Women Athletes (N=25)	54.24		4.01		
Women Non Athletes (N=25)	53.04	1.20	6.63	1.55	0.77

Required table value 't' 0.05 (1,99),= 1.66

The above Table III shows the comparison of anxiety between women athletes and women non athletes. Table III shows that the mean values of women athletes on anxiety was 54.24 and women non athletes was 53.04 with mean difference of 1.20. The means values were subjected to statistical treatment using 't' test and the obtained 't' value of 0.77 was less than the required 't' value 1.677. Thus, it was proved that there was no significant difference between women athletes and women non athletes. The hypothesis that "there will be no significant difference between women athletes and women non athletes on anxiety" was accepted. The obtained means were presented through bar diagram in Figure 3 for better understanding of the results.

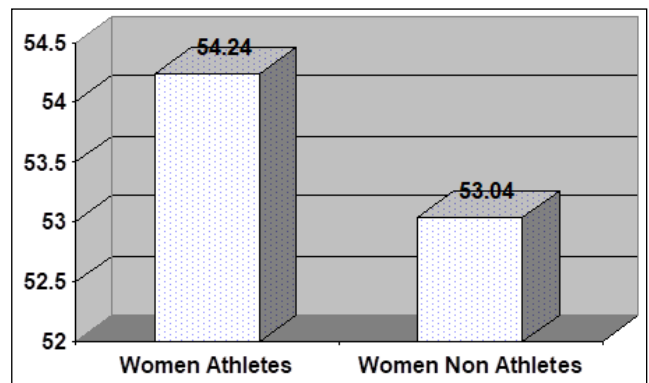


Fig 3: Bar Diagram Showing the Mean Values of Anxiety Women Athletes and Women Non Athletes

**Results on Socio Economic Status**

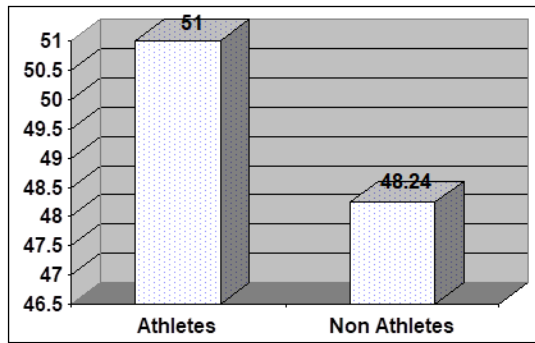
The data collected on socio economic status were compared between the four independent groups.

Table 4: Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Athletes and Non Athletes on in Socio economic status

Group	Mean	MD	SD	SDM	t'
Athletes (N=50)	51.00		9.09		
Non-Athletes(N=50)	48.24	2.76	8.63	1.77	1.56

Required table value 't' 0.05 (99),= 1.66

The above Table IV shows the comparison of socio economic status among athletes and non athletes. Table IV shows that the athletes mean values on socio economic status was 51.00 and non athletes was 48.24 with mean difference of 2.76. The means values were subjected to statistical treatment using 't' test and the obtained 't' value of 1.19 was less than the required 't' value 1.56. Thus, it was proved that there was no significant difference between athletes and non athletes. The null hypothesis that "there will be no significant difference in socio economic status between athletes and non athletes" was accepted. The obtained means were presented through bar diagram in Figure 16I for better understanding of the results.



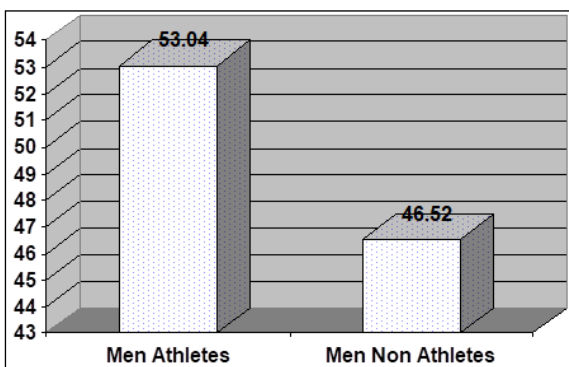
**Fig 4:** Bar Diagram Showing the Mean Values of Socio economic status Athletes and Non Athletes

**Table 5:** Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Men Athletes and Men Non Athletes on Socio economic status

Group	Mean	MD	SD	SDM	t'
Men Athletes(N=25)	53.04	6.52	9.59	2.50	2.61*
Men Non Athletes (N=25)	46.52		8.03		

Required table value 't' 0.05 (1,49),= 1.677

The above Table V shows the comparison of socio economic status between men athletes and men non athletes. Table V shows that the socio economic status mean values of men athletes was 53.04 and men non athletes was 46.52 with mean difference of 6.50. The mean values were subjected to statistical treatment using 't' test and the obtained 't' value of 2.61 was greater than the required 't' value 1.677. Thus, it was proved that there was significant difference between men athletes and men non athletes in socio economic status.. The hypothesis that "there will be no significant difference between men athletes and men non athletes in socio economic status" was rejected. The obtained means were presented through bar diagram in Figure 17 for better understanding of the results.



**Fig 5:** Bar Diagram Showing the Mean Values of Socio economic status Men Athletes and Men Non Athletes

**Results on Leg Strength**

The data collected on leg strength were compared between the four independent groups.

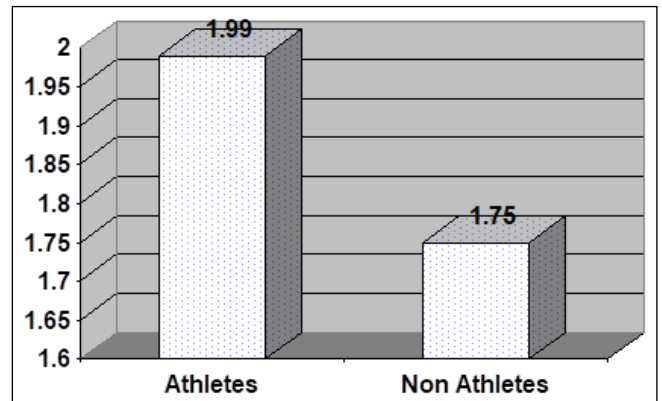
**Table 6:** Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Athletes and Non Athletes on in Leg strength

Group	Mean	MD	SD	SDM	t'
Athletes (N=50)	1.99	0.25	0.36	0.07	3.47*
Non Athletes (N=50)	1.75		0.36		

Required table value 't' 0.05 (99),= 1.66

The above Table VI shows the comparison of leg strength among athletes and non athletes.

Table VI shows that the athletes mean values on leg strength was 1.99 and non athletes was 1.75 with mean difference of 0.25. The means values were subjected to statistical treatment using 't' test and the obtained 't' value of 3.49 was greater than the required 't' value 1.66. Thus, it was proved that there was significant difference between athletes and non athletes. The null hypothesis that "there will be no significant difference in leg strength between athletes and non athletes" was rejected. The obtained means were presented through bar diagram in Figure 21 for better understanding of the results.



**Fig 6:** Bar Diagram Showing the Mean Values of Leg strength Athletes and Non Athletes

**Table 7:** Showing Means, Standard Deviation, Standard Error and obtained 't' Value between Men Athletes and Men Non Athletes on Leg strength

Group	Mean	MD	SD	SDM	t'
Men Athletes-(N=25)	2.42	0.28	0.14	0.04	7.46*
Men Non Athletes (N=25)	2.15		0.12		

Required table value 't' 0.05 (1,49),= 1.677

The above Table VII shows the comparison of leg strength between men athletes and men non athletes.

Table VII shows that the leg strength mean values of men athletes was 2.42 and men non athletes was 2.15 with mean difference of 0.28. The mean values were subjected to statistical treatment using 't' test and the obtained 't' value of 7.48 was greater than the required 't' value 1.677. Thus, it was proved that there was significant difference between men athletes and men non athletes in leg strength.. The null hypothesis that "there will be no significant difference between men athletes and men non athletes in leg strength" was rejected. The obtained means were presented through bar diagram in Figure 22 for better understanding of the results.

**Conclusions**

Within the limitations and delimitations of this study, the following conclusions are drawn.

1. Based on the findings and discussions made in comparing selected psychological variables, anxiety, stress and aggression between athletes and non athletes, it was concluded that there were no significant differences on anxiety and stress between athletes and non athletes.

2. It was concluded that the men athletes were found to be significantly more socio economic condition than non athletes and other groups compared.
3. Based on the findings and discussions made in comparing selected motor fitness variables, leg strength between athletes and non athletes, it was concluded that there were significant differences and men athletes were significantly having better leg strength with other groups.

### **Recommendations**

The results of this study proved that there was no significant difference in psychological variables, anxiety, stress among the groups, athletes and non athletes and socio economic status and motor fitness variable balance backward.

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