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Measurement of Competition Level Anxiety of College Level Athletes by Using SCAT

Dr. Subhabrata Kar

Assistant Professor, Department of Physical Education, Union Christian Training College, Berhampore, Murshidabad, W.B.

Abstract: All athletes experience the anxious thoughts that so frequently occur in response to stress. Throughout the course of one's career, however, the sources of stress and the kinds of anxious thoughts experienced change. The increased stress of competitions can cause athletes to react both physically and mentally in a manner which can negatively affect their performance abilities.

Subjects: 55 male and female college going track and field athletes were selected from 120 population of Nadia & Murshidabad district of West Bengal of age group 22-25. The athletes had an average of 3 years participation experience in district, state or university level track & field competitions. Among the 55 athletes 20 were sprinters and jumpers or both (SJG), which consisted with 12 male and 8 female athletes; 20 were long distance runners (LDG), which consisted with 12 male and 8 female athletes and 15 were middle distance runners (MDG), which consisted with 10 male and five female athletes.

Procedure: To measure competition related anxiety of the athletes Sport Competition Anxiety Test (SCAT, developed by Rainer Martens in 1977) was introduced. Then each athlete's composite score (CS) was found. Then that score was analysed according to SCAT score analysis norms.

The results were prepared mainly according to Mean Composite Score (MCS) of three groups and ANOVA. While considering MCS, SJG showed average level of competition anxiety(CA) with mean & SD as 21.748 ± 2.643 where female sprinters showed on average high CA in comparison to boys. In case of MDG, the overall mean CA level was found average (23 ± 2.221), but girls showed high level of CA (25 ± 0.632) in comparison to all groups. On other hand, LDG showed, on average, low level of CA, i.e. overall mean and SD as 16.95 ± 1.564 . One way ANOVA showed significant difference between three groups in respect of SCAT composite score of the subjects of three groups. Post hoc test showed no significant difference between SJG and MDG. It was also found that, the CA of athletes was influenced by the increase of number of participation years and the level of participation.

In the present study SCAT was used to find out the anxiety level of college athletes in intercollegiate and university level track and field competitions. The long distance runners showed low level of CA in comparison to sprint-jumping and middle-distance athletes.. It may be concluded that the anxiety level of athletes was increased with level of participation as well as decreased with increment of participation year in sports.

Index Terms: Sports competition, Stress, Anxiety level, SCAT.

I. INTRODUCTION

All athletes experience the anxious thoughts that so frequently occur in response to stress. Throughout the course of one's career, however, the sources of stress and the kinds of anxious thoughts experienced change. The increased stress of competitions can cause athletes to react both physically and mentally in a manner which can negatively affect their performance abilities. Sports and performance anxiety often go hand-in-hand. While many athletes become "pumped up" during competition, when the rush of adrenaline is interpreted as anxiety, and negative thoughts begin to swirl, it can have devastating effects on his/her ability to perform. Before an athlete learns how to manage the symptoms of anxiety during competitions, it is important to understand the relationship between anxiety and athletic performance.

Anxiety before or during athletic competitions can hinder athlete's performance as an athlete. The coordinated movement required by athletic events becomes increasingly difficult when his/her body is in a tense state. A certain level of physical arousal is helpful and prepares us for competition. But when the physical symptoms of anxiety are too great, they may seriously interfere with athlete's ability to compete. Similarly, a certain amount of worry about how he/she perform can be helpful in competition, but severe cognitive symptoms of anxiety such as negative thought patterns and expectations of failure can bring about a self-fulfilling prophecy. If there is a substantial difference between how he/she performs during practice and how he/she does during competitions, anxiety may be affecting his/her performance. Research suggests that people with a family history of anxiety have increased risk of developing it. They have greater chance of suffering from anxiety disorder which results in constant worry (**Kendler et al, 2002**)[1].



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Some types of athletes are more prone to feeling the effects of anxiety on performance. Amateur athletes are more likely than seasoned professionals to experience anxiety that interferes with their ability to perform in competition -- this makes sense due to their relative lack of experience both in competition and in managing arousal. **Douglas et al, (2006)[2]** states that the major sources of pre-competition anxiety include: fear of failure, thinking too much on what people may say about the performance, and lack of confidence. They conclude however, that pre-competitive anxiety is dependent upon factors such as: skill level, experience and general level of arousal in daily activities.

Athletes who participate in individual sports have also been found to experience more anxiety than those who play team sports. Common sense suggests that being part of a team alleviates some of the pressure experienced by those who compete alone.

Finally, there is evidence that in team sports, when a team plays at the venue of the opposition (known as an "away" game) anxiety levels tend to be higher than when playing at home. Again, common sense would indicate that having greater fan support and more familiarity with the venue plays a role in anxiety levels during competition. While inventing Sports Competitive Anxiety Test **Martens et al. (1990)[3]** saw that pre-competitive anxiety as an arousal that is unpleasant or negative and occurs prior to competition. According to them, it is negative emotional state that is characterised with feeling of worry, nervousness and apprehension associated with activation of the body.

How are elite athletes consistently able to rise to the challenge when faced with tough competition? Research shows that self-confidence plays a role in how you respond to symptoms of anxiety during athletic performance. People who are confident in their abilities are more likely to have a positive reaction to arousal and anxiety and thrive on the challenge of competition. Elite athletes are often so focused on their behaviour that they interpret arousal as excitement rather than anxiety.

In general, self-confidence tends to be highest when you believe in your ability and feel that you have properly prepared for a competition. Worry and confidence are at opposite ends of the spectrum -- when confidence is strong, it tends to crowd worry out of the mind.

II. METHODS

A. SUBJECTS:

55 male and female college going track and field athletes were selected from 120 population of Nadia & Murshidabad district of West Bengal of age group 22-25. The athletes had an average of 3 years participation experience in district, state or university level track & field competitions. Among the 55 athletes 20 were sprinters and jumpers or both (SJG), which consisted with 12 male and 8 female athletes; 20 were long distance runners (LDG), which consisted with 12 male and 8 female athletes and 15 were middle distance runners (MDG), which consisted with 10 male and five female athletes.

B. PROCEDURE:

To measure competition related anxiety of the athletes Sport Competition Anxiety Test (SCAT, developed by **Rainer Martens in 1977**) was introduced. Then each athlete's composite score (CS) was found. Then that score was analysed according to SCAT score analysis norms. All 55 athletes were first of all provided with following SCAT questionnaire and they were asked to give their opinion strictly independent manner. The SCAT contains 15 items, 10 of which measures symptoms associated with anxiety. The five items that are not scored are included in the inventory to reduce the likelihood of an internal response-set bias. The standard instructions of the SCAT ask respondents to indicate how they "usually feel when competing in sports and games". However, to make the instruments more contextual relevant to the athletes in this study, the phrase "sports and games" was replaced with the word "track and field". The scoring system of SCAT was mentioned below.

C. SPORT COMPETITION ANXIETY TEST:

Assess how you feel about the following situations when you compete in Track & Field, using the following scale:

- | | |
|-------------|---|
| Hardly ever | A |
| Sometimes | B |
| Often | C |

1. Competing against others is socially enjoyable. _____
2. Before I compete, I feel uneasy. _____
3. Before I compete, I worry about not performing well. _____
4. I am a good sport person when I compete. _____
5. When I compete, I worry about making mistakes. _____
6. Before I compete I am calm. _____



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- 7. Setting a goal is important when competing. _____
- 8. Before I compete I get a queasy feeling in my stomach. _____
- 9. Just before competing, I notice that my heart beats faster than usual. _____
- 10. I like to compete in games that demand considerable physical energy _____
- 11. Before I compete I feel relaxed. _____
- 12. Before I compete I am nervous. _____
- 13. Team sports are more exciting than individual sports. _____
- 14. I get nervous wanting to start the game. _____
- 15. Before I compete I usually get uptight. _____

D. SCORING:

Items 1, 4, 7, 10, and 13 are filler items used to help disguise the purpose of the test; one should have to cross them out, as they will not be used for scoring. Items 2, 3, 5, 8, 9, 12, and 15 are scored in the following manner: hardly ever=1 pt., sometimes=2 pts, often=3 pts. For items 6 and 11, the scoring is reversed: hardly ever=3 pts, sometimes=2 pts, often=1 pt. Simply total the numbers for these 1- items to determine your trait anxiety score, which ranges from a low of 10, to a high of 30.

III. RESULTS AND ANALYSIS

The results were prepared mainly according to Mean Composite Score (MCS) of three groups and ANOVA. All the means, S.D. and range of scores were presented in Table.- 1, 2 and 3. While considering MCS, SJG showed average level of competition anxiety (CA) with mean & SD as 21.748±2.643 where female sprinters showed on average high CA in comparison to boys. In case of MDG, the overall mean CA level was found average (23±2.221), but girls showed high level of CA (25±0.632) in comparison to all groups. On other hand, LDG showed, on average, low level of CA, i.e. overall mean and SD as 16.95±1.564. In all three cases female showed high level of competition anxiety than male. **Lions(2006)[4]** opined that when athletes start to experience increase heart rate, sweating, rapid breathing and dry mouth prior to competition, it all indicate signs of pre-competitive anxiety. One way ANOVA (Table.-4) showed significant difference between three groups in respect of SCAT composite score of the subjects of three groups. Post hoc test showed no significant difference between SJG and MDG. But significant difference found between SJG and LDG, as well as MDG and LDG. The state anxiety levels experienced by athletes may fluctuate in different competitive situations (**Russell et al., 1988)[5]**, such as host competitions (**Carre et al.,2006)[6]** and in different types of sports (**Hanton et al. 2000)[7]**). However, the degree to which pre-competitive anxiety influence athletes perform is largely dependent upon the interaction of the athlete’s, uniqueness and the competition situation (**Lions, 2006)[4]**. In support of this, **Krone (1994) [8]**observed that our bodies provide us with numerous cues such as muscle tension, butterflies, desire to urinate and cotton mouth that suggest that we are out of control. It was also found that, the CA of athletes was influenced by the increase of number of participation years and the level of participation. A study conducted by **Ntoumanis, et al. (1997)[9]**showed that perceptions of a mastery climate are more likely to be linked with task orientation, whereas perception of a performance climate are related to ego goal orientation. **White et al. (1991)[10]**suggested that experienced and older athletes showed lower levels of both cognitive and somatic anxiety in competitive situation.

Table.-1 Mean and S.D. of SJG

Group	Mean	S.D.	Range
SJG	21.78	2.643	8
SJG Female	22.875	1.832	5
SJG Male	21.983	2.75	8

Table.-2 Mean and S.D. of MDG

Group	Mean	S.D.	Range
MDG	23.00	2.643	7
MDG Female	25.00	1.832	2
MDG Male	22.00	2.75	6

Table.-3 Mean and S.D. of LDG

Group	Mean	S.D.	Range
LDG	16.95	1.5644	6
LDG Female	17.87	1.7633	5
LDG Male	16.33	1.027	3



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Table.-4 ANOVA Table for Comparison between means

Source	SS	df	MS	F	p
Treatment (Between)	378.5773	2	189.2886	38.43*	<0.0001
Error	256.15	52	4.926		
Total	634.7273	54			

*Significant (0.01 level)

Table.-5 Tukey Post Hoc Test

M_1 vs M_2	Not Sign.	M_1 = Mean of SJG M_2 = Mean of MDG M_3 = Mean of LDG	MSD = the absolute [unsigned] diff. between sample means required for significant at the designated level. HSD [0.05] for 0.05 level; HSD [0.01] for the 0.01 level.
M_1 vs M_3	P<0.01		
M_2 vs M_3	P<0.01		

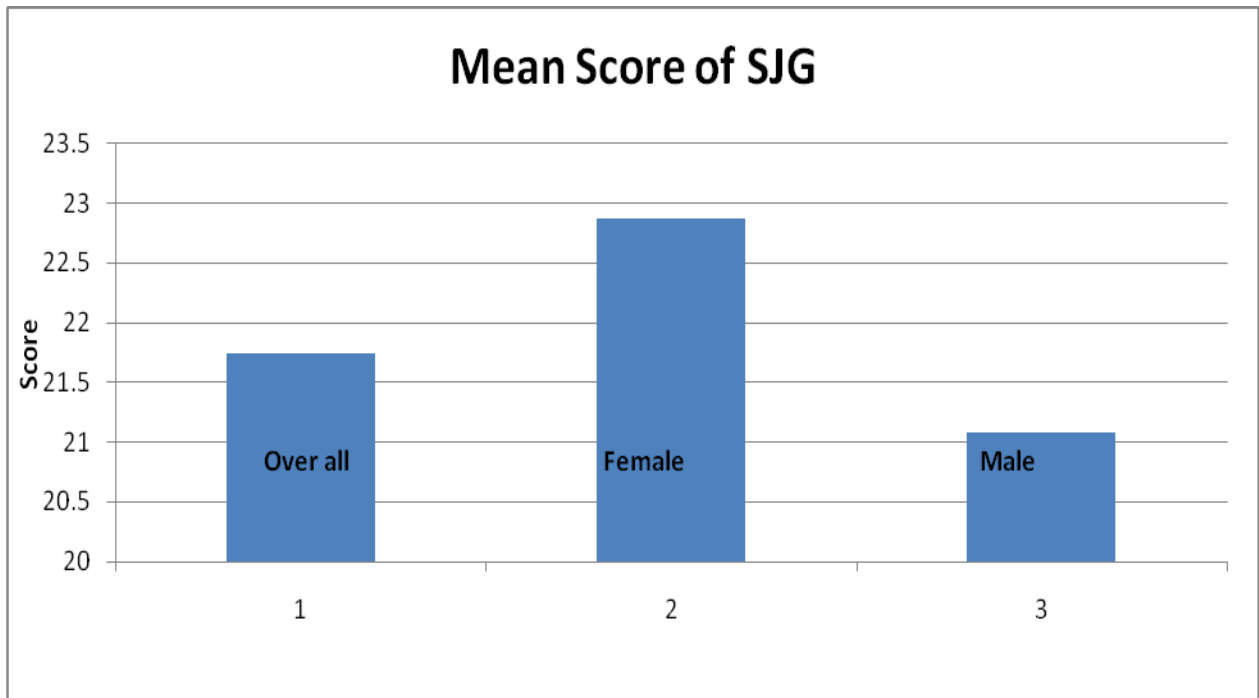


Fig.-1 Mean Score of SJG

The SJG showed that among 20 subjects 85% had average level of CA, 15 had high level of CA, but no person with low level of CA. On the other hand, MDG showed 67% of average, 33% of high and 0% of low level of CA. At the same time, LDG showed 50% of average, 50% of low and no high level of CA (Fig.-2,4 &6). While taking three groups together, 67% found average, 18% found low and 15% found high level of CA (Fig.-7). Fig. No.-5 shows comparison between overall means of three groups and Fig.-9 shows male and female comparison of three groups. Males showed less CA than females, which is consistent with the study of **Krane et al. (1994)[11]**. Result showed that there was greater number of subjects, who participated Track & field sports more than 4 years, in LDG than other two groups (Fig.-10). Present study is consistent with a lot of studies conducted by eminent psychologists. Anxious athletes will find it difficult to be able to remain focus on the task at hand and finally pre-competition anxiety can increase tension in the muscle of the throat and chest to the point where it may seem impossible to swallow or expand the chest (**Ikulayo, 1990[12]**). According to **Krane (1994)[8]**, pre-competition anxiety has been found to exert a powerful influence on athlete's performance. In his research he observed that the cognitive interpretation an individual gives to a situation exerts an effect on his or her performance. He also added that successful athletes are those that can interpret pre-competition anxiety to be facilitative in the course of their athletic performance.



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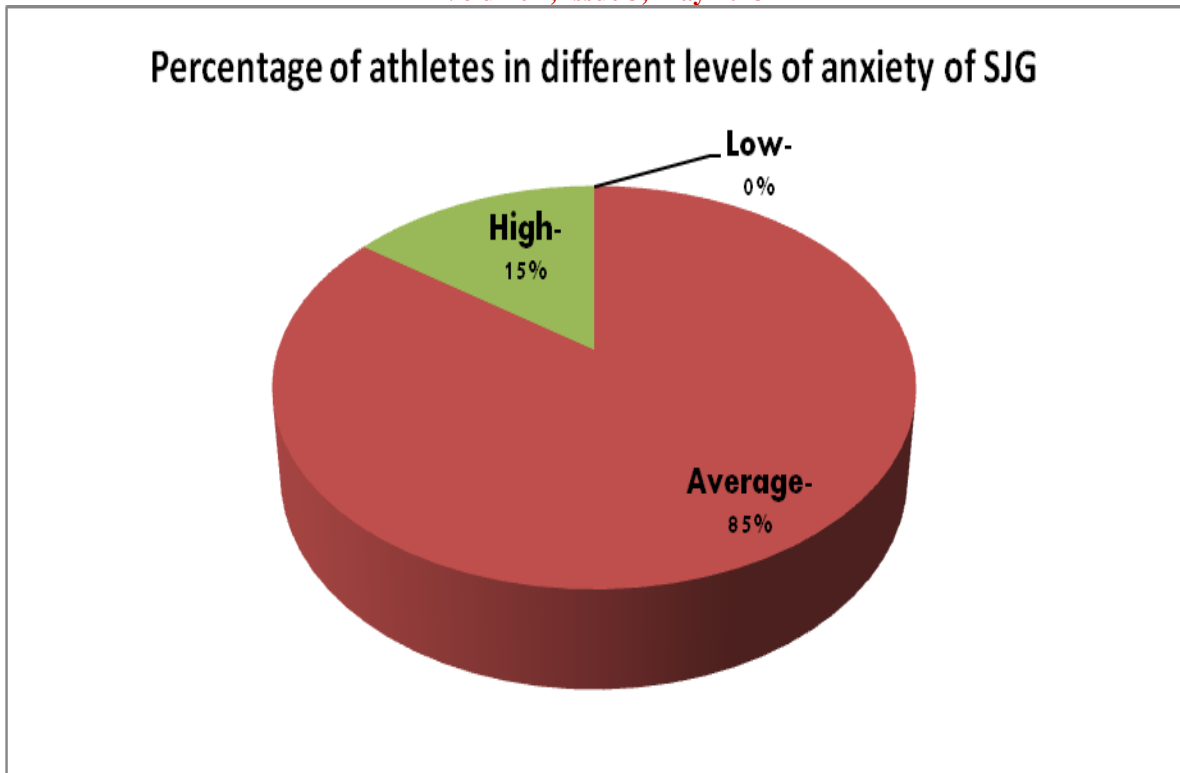


Fig.-2 Percentage of athletes in different levels of anxiety of SJG

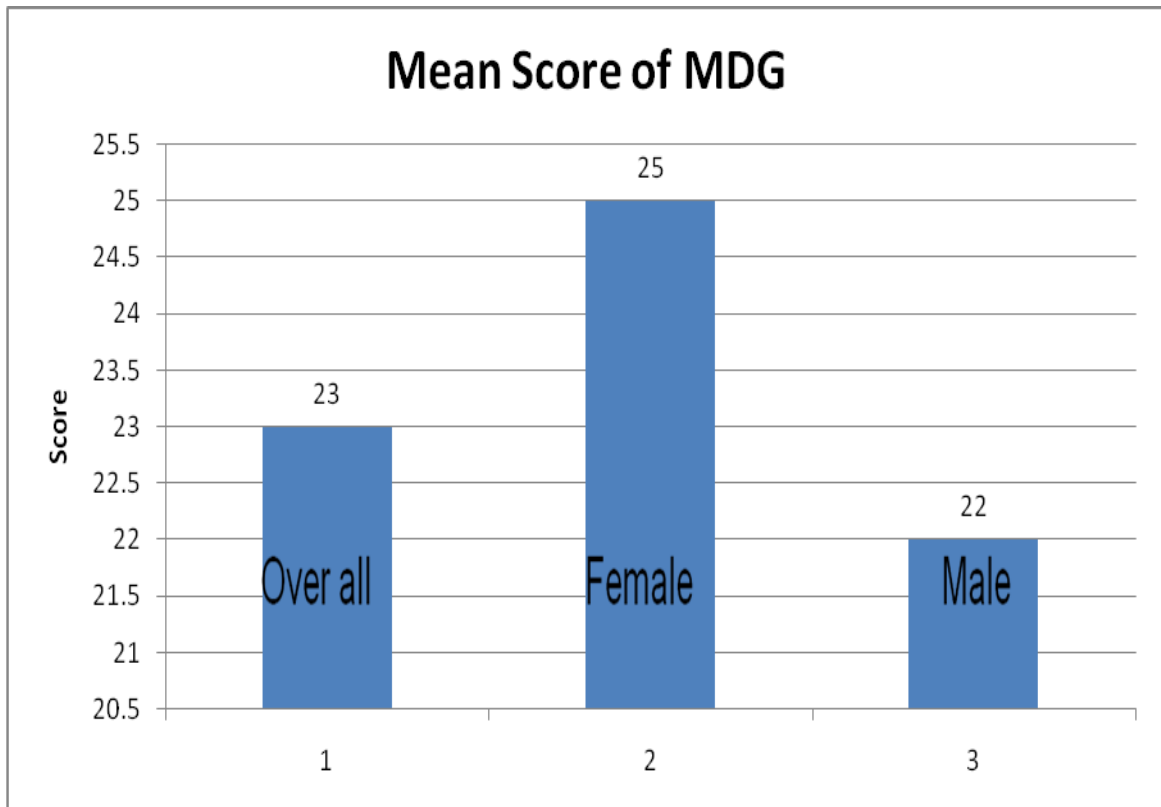


Fig.-3 Mean Scores of MDG



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Percentage of athletes in different levels of anxiety of MDG

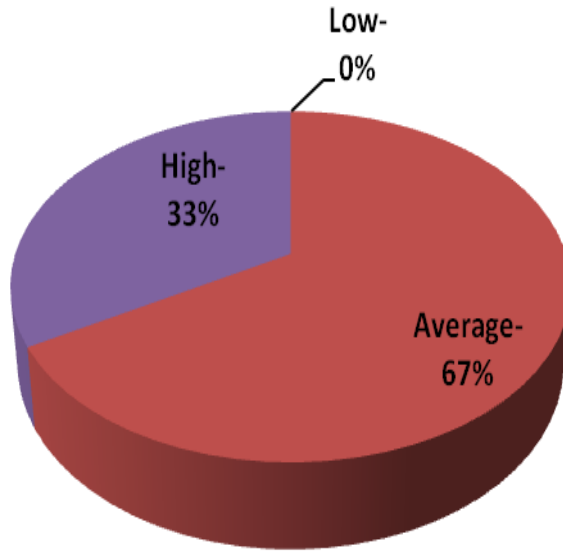


Fig.-4 Percentage of athletes in different levels of anxiety of MDG

Mean Score of LDG

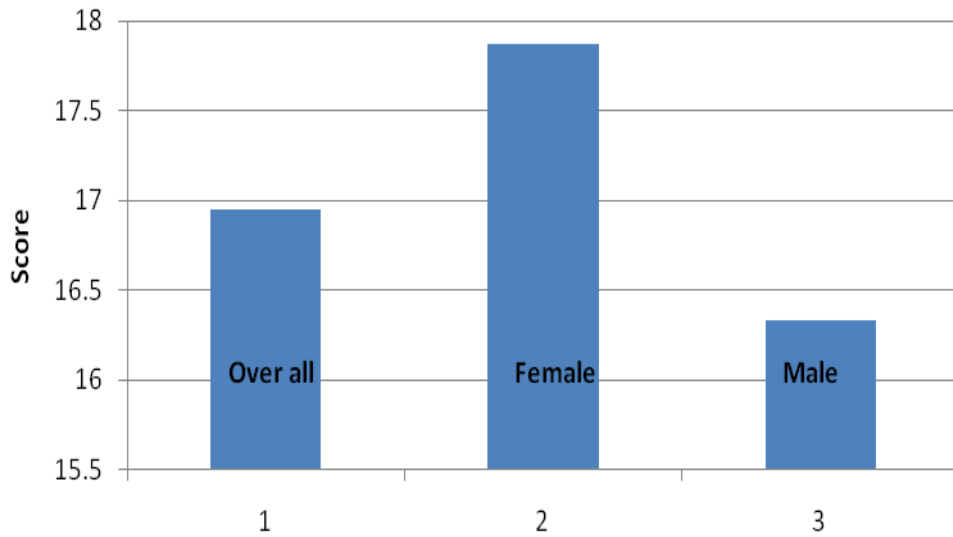


Fig.-5 Mean Scores of LDG



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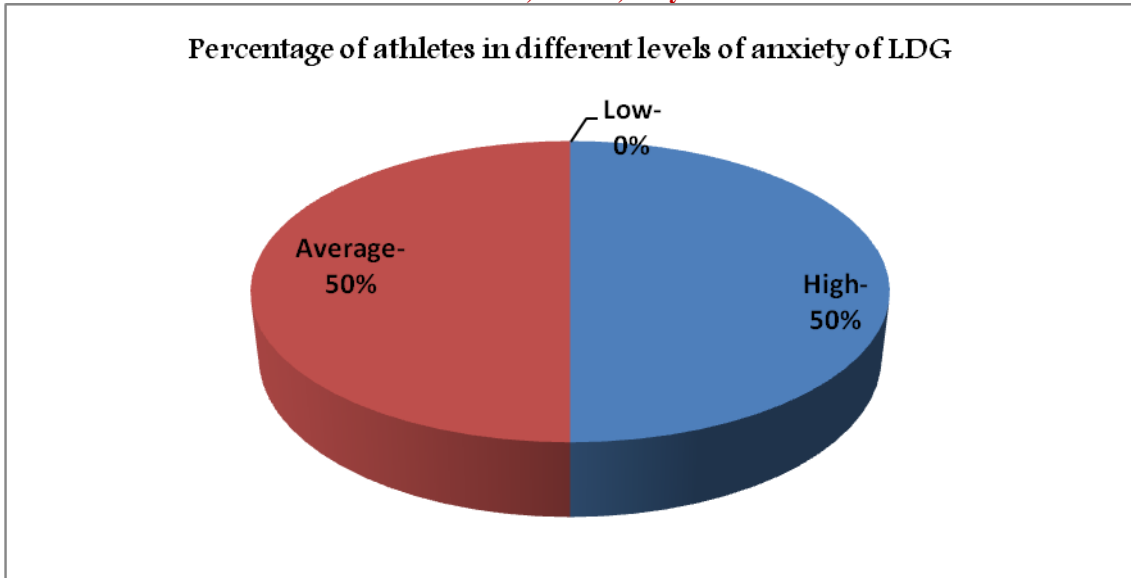


Fig.-6 Percentage of athletes in different levels of anxiety of LDG

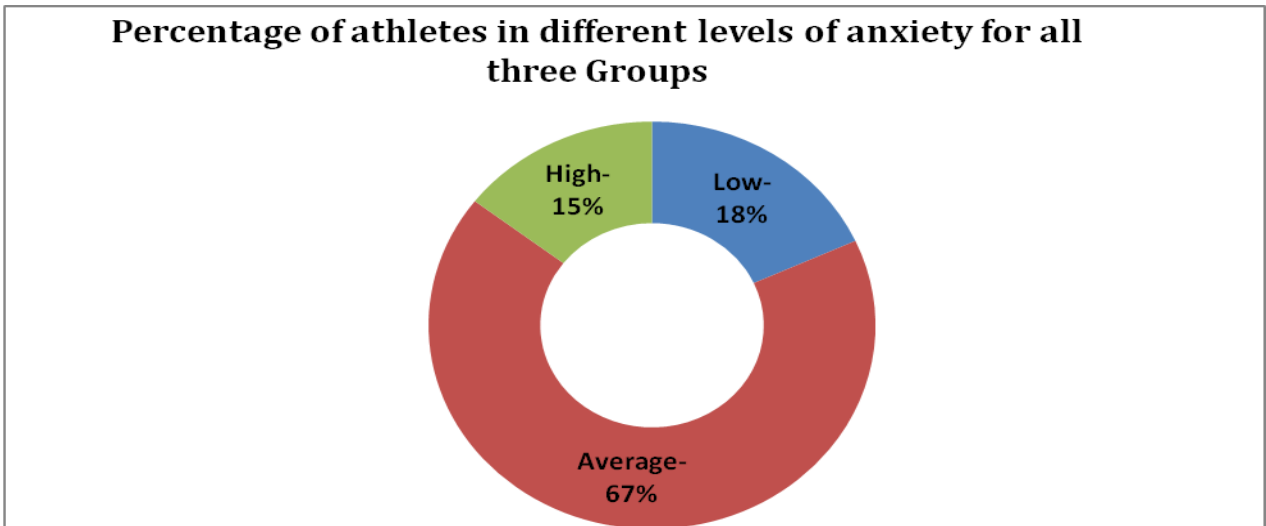


Fig.-7 Percentage of athletes in different levels of anxiety for all three Groups

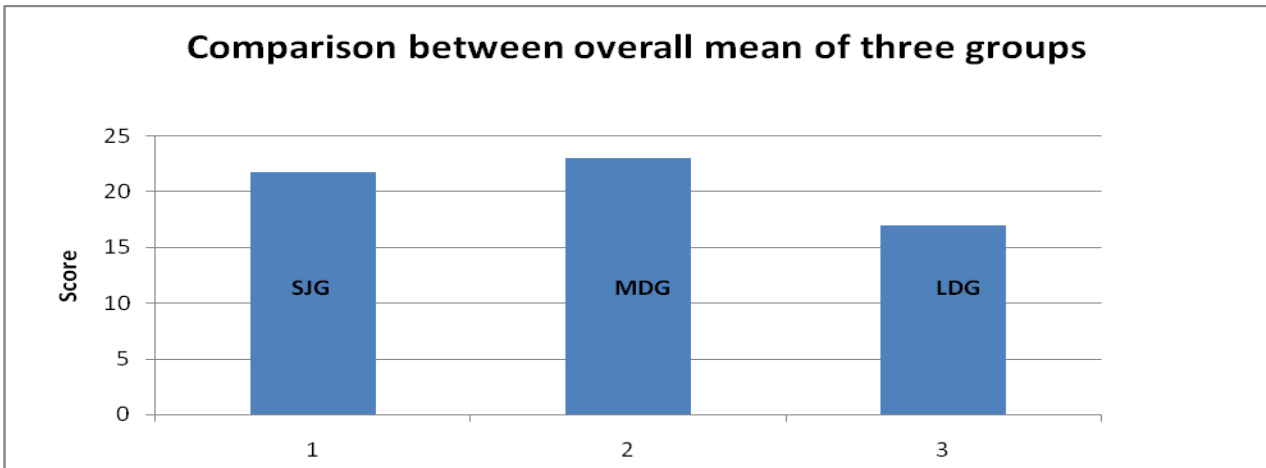


Fig.-8 Comparison among overall means of three groups

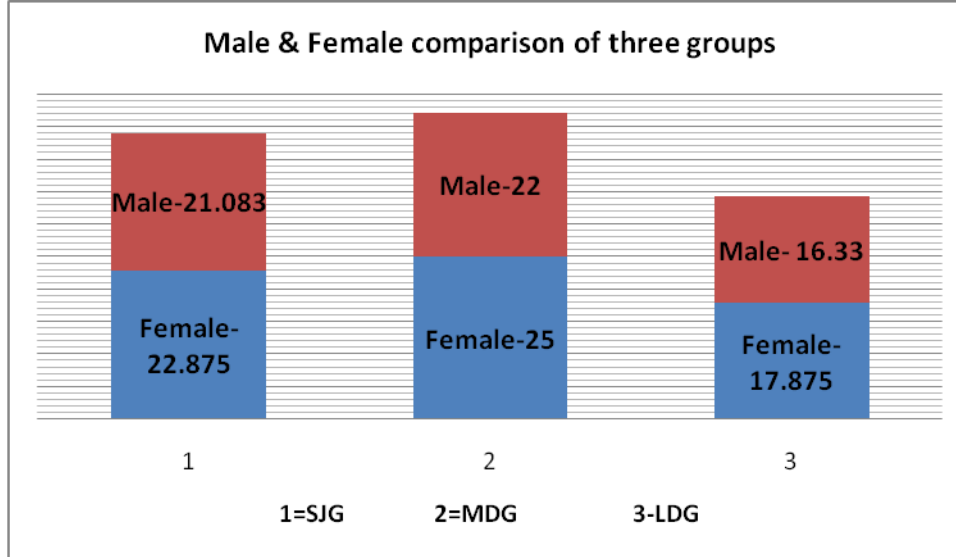


Fig -9 Male & Female score comparison of three groups

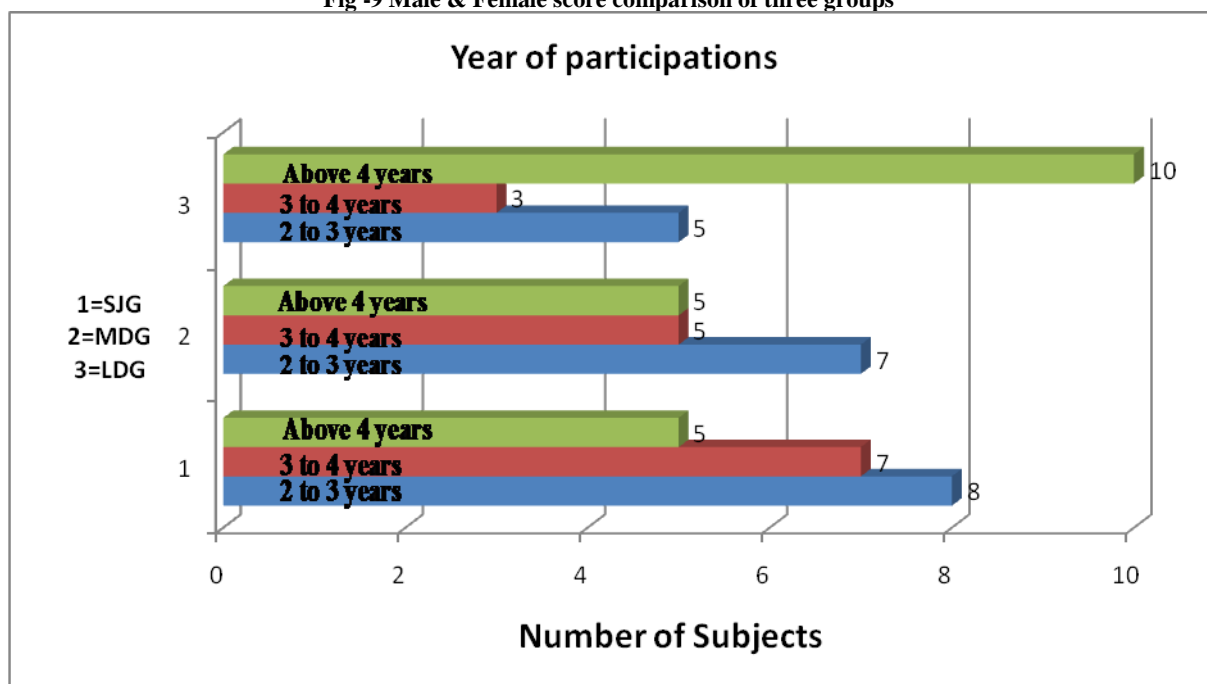


Fig.10 Years of Participation of three groups

IV. CONCLUSION

In the present study SCAT was used to find out the anxiety level of college athletes in inter-collegiate and university level track and field competitions. The long distance runners showed low level of CA in comparison to sprint-jumping and middle-distance athletes. In respect of competition level anxiety score long-distance runners are different from sprint-runners and middle-distance runners. All three groups showed that female athletes have high level of CA than their male counterpart. It may be concluded that the anxiety level of athletes is increased with level of participation as well as decreased with increment of participation year in sports.

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