

# PSYCHOLOGICAL FACTORS CONTRIBUTING TOWARDS PEAK PERFORMANCE AMONG ELITE INDIAN TRACK AND FIELD ATHLETES

Indu Mazumdar, Ashutosh Acharya, Late Jayashree Acharya

Professor, SOSE, ITMU, Gwalior

Assistant Professor, Department of Sport Psychology, SAI-LNCPE, Trivandrum, Kerala

\*Professor, Department of Sport Psychology & Director, IQAC LNIPE, Gwalior

**Abstract:** The objective of the study was to identify and organize training, preparation and the development of an athlete from psychological point of view. The outcome of the study would aid in identifying an appropriate intervention strategy whenever required and maximize the athlete's motivation and adherence to the training program. The subjects for the study were 10 track & field athletes attending Indian camp. The test items selected for psychological parameters for assessing in this study were Athletic coping skills inventory "To measure individual differences in Psychological Skills within a sports context" (Smith, Schutz, Smoll and Ptacek, 1995) Task and Ego Orientation in Sport (TEOSQ): "TEOSQ is to assess individual differences in goal perspectives in sport settings. It also assesses whether the individual is prone to being task or ego orientated in the sporting context. This relates also to the extent that an individual defines success as mastery (task) or outperforming others (ego) and Competitive State Anxiety Inventory – 2. The CSAI-2 is an instrument used to measure state cognitive state anxiety, somatic state anxiety and state self-confidence in competitive situations. The outcomes of the study are discussed inline with the research outcomes of various contemporary researches.

**Keywords:** Anxiety, Coping, Task and Ego Orientation

## INTRODUCTION

In addition to certain physiological characteristics, psychological indicators also are important in distinguishing successful from unsuccessful athletes (Morgan, 1973). Other investigators have employed psychological testing to uncover variables pertinent to predicting and understanding athletic success in wrestling (Nagle et al, 1975; Morgan, 1968), rowing (Morgan, 1978; Williams, 1977), distance running (Morgan et al, 1977), and cycling (Hagberg et al, 1979). The utilisation of a composite psychological profile may better assess potential track and field success.

Vernacchia et al (2000) investigated psychosocial characteristics of 15 USA Olympic track and field athletes (9 males, 6 females) who participated in one or more of the Olympic Games. Interviews were conducted with each athlete that explored their dreams, developmental influences, performance and developmental obstacles, mental preparation, salient mental and physical qualities, and advice to young athletes. A qualitative research design which employed content analysis methodology was used to derive general and emergent themes that categorized and described the athletes' responses to interview questions. Emergent themes included: mental skills and attitudes; developmental concerns; socioeconomic factors; and spiritual/religious factors. Overall this study provided insight into the psychosocial factors that were important in the athletic and personal development of elite track and field athletes. Particular attention was given to the mental qualities and preparation necessary to become an elite track and field athlete and to succeed at the highest competitive levels.

Gould et al(2002) designed a study to examine psychological characteristics and their development in Olympic champions. Ten U.S. Olympic champions (winners of 32 Olympic medals) were interviewed, as were one of their coaches (n = 10), and a parent, guardian, or significant other (n = 10). A battery of psychological inventories was also administered to the athletes. It was found that the athletes were characterized by: (a) the ability to cope with and control anxiety; (b) confidence; (c) mental toughness/resiliency; (d) sport intelligence; (e) the ability to focus and block out distractions; (f) competitiveness; (g) a hard-work ethic; (h) the ability to set and achieve goals; (i) coachability; (j) high levels of dispositional hope; (k) optimism; and (l) adaptive perfectionism. Results also revealed that a number of individuals and institutions influenced the athletes' psychological development including the community, family, the individual himself or herself, non-sport personnel, sport environment personnel, and the sport process. Coach and family influences were particularly important. Ways in which these sources influenced the athletes were both direct, like teaching or emphasizing certain psychological lessons, and indirect, involving modeling or unintentionally creating certain psychological environments. Psychological characteristic findings verified current sport psychological research on psychological characteristics associated with peak performance (Williams & Krane, 2001). They also suggest that adaptive perfectionism, dispositional hope, and high levels of optimism are new variables to consider. Results are also discussed relative to Bloom's (1985), Côté's (1999) and Csikzentmihalyi, Rathunde, Whalen, and Wong's (1993) talent development research. Practical implications focus on implementing parenting and coaching practices related to the development of psychological characteristics associated with athletic success.

An elite athlete is a rare combination of talent, hard work and the right psychological profile. In sports today, everyone knows the best training methods, has access to the best facilities and most nutritional foods. Often the difference between the good and the elite is the mental qualities of the athletes. The focus of this paper is on three psychological characteristics athletes: task & ego orientation, anxiety pattern and coping skills. More specifically, here it is a preliminary attempt to look various psychological

variables such as task & ego orientation, anxiety pattern and coping skills among selected track and field athletes. In order for any athlete to prepare mentally for competition, a planned program of all variables must be available. If an athlete is to attain his/her actual potential, the psychological portion of their training must begin early and continue throughout their careers. This is currently not the situation. Very few coaches or programs offer much of a psychological component. At best, the psychological offerings have been spontaneous and/or temporary in nature.

To identify and organise training, preparation and the development of an athlete from psychological point of view. The outcome of this study would aid in identifying an appropriate psychological intervention and to maximize the athlete's motivation and adherence to the program.

## MATERIALS AND METHODS

The subjects for the study were 10 track & field athletes attending Indian camp. The first section was **demographic information** sheet consisting of several questions describing the sample's age, height, weight and number of years they had participated in their sport. The test items selected for psychological parameters for assessing in this study were Athletic coping skills inventory "To measure individual differences in Psychological Skills within a sports context" (Smith, Schutz, Smoll and Ptacek, 1995) The ASCI was developed to assess specific psychological coping skills such as concentration and control of worry.

Task and Ego Orientation in Sport (TEOSQ): "TEOSQ is to assess individual differences in goal perspectives in sport settings. It also assesses whether the individual is prone to being task or ego orientated in the sporting context. This relates also to the extent that an individual defines success as mastery (task) or outperforming others (ego)

Competitive State Anxiety Inventory – 2 (CSAI-2) : The CSAI-2 is an instrument used to measure state cognitive state anxiety, somatic state anxiety and state self-confidence in competitive situations.

## RESULT AND DISCUSSION

The total sample that was opted for the study, their descriptive statistics on various demographic aspects have been presented in table 1.

**Table 1**  
**Descriptive Statistics of Task and Ego Orientation among athletes of both the Genders**

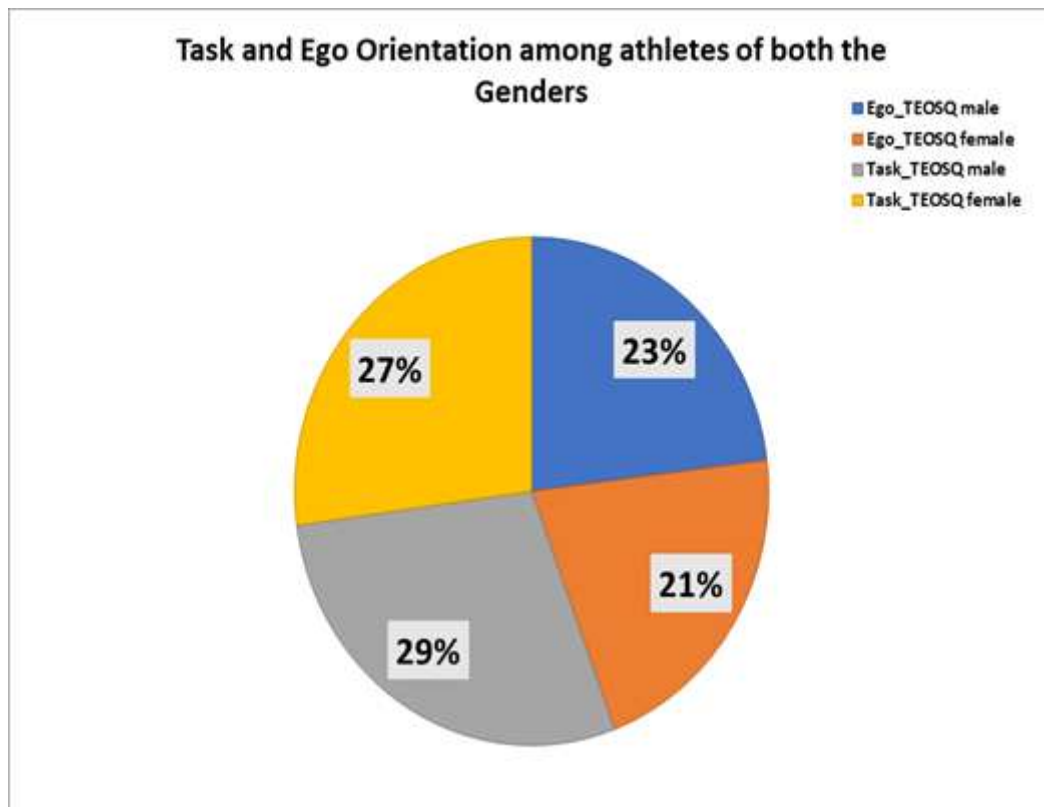
Gender	N	Mean	Std. Deviation	Std. Error Mean
Ego_TEOSQ	male	3.60	.75	.13
	female	3.32	.71	.15
Task_TEOSQ	male	4.46	.49	.08
	female	4.24	.51	.11

Above table indicates that the mean and SD of 35 Male athletes in their ego orientation is 3.60 + .75; 22 Female athletes in their ego orientation is 3.32 + 0.71; the mean and SD of Male athletes in their task orientation is 4.46 + .49 ;Female athletes in their task orientation 4.24+ .51.

Graphical representation of the task and ego orientation show that out of 57 athletes ; 23% of male & 21 % of female athletes having ego orientation, and 29% male and 27 % female athletes are having task orientation.

Task and ego orientation scores for each level of gender were normally distributed, as assessed by Shapiro-Wilk's test ( $p > .05$ ), and there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .847$ ).

The ego orientation of  $t(55)=1.404$ ,  $p= .166$  and task orientation of  $t(55)=1.672$ ,  $p= .100$  male and female athletes were found to be insignificant as p value was greater than .005. The ego orientation was not more than of male athletes (3.60 + .75) than of female athletes (3.32 + 0.71), as there was no statistically significant difference  $t(55) = 1.404$ ,  $p = .166$ . The task orientation was not more than of male athletes (4.46 + .49) than of female athletes (4.24+ .51), as there was no statistically significant difference  $t(55) = 1.672$ ,  $p = .100$ .

**Figure 1. Percentage Value of Task and Ego Orientation among athletes of both the Genders****Table 2: Descriptive Statistics of Athletic Coping Skills Inventory among athletes of both the Genders**

	Gender	N	Mean	Std. Deviation	Std. Error Mean
Coping With Adversity_ACSI	male	35	8.17	1.93	.33
	female	22	8.32	1.52	.32
Coachability_ACSI	male	35	5.46	1.22	.21
	female	22	6.09	1.57	.33
Concentration_ACSI	male	35	9.03	1.95	.33
	female	22	9.23	2.43	.52
Confidence & achievement motiv_ACSI	male	35	8.94	1.24	.21
	female	22	7.77	1.93	.41
Goal setting & mental preparation_ACSI	male	35	6.91	1.88	.32
	female	22	6.36	2.08	.44
Peaking under pressure_ACSI	male	35	5.86	2.30	.39
	female	22	6.27	1.64	.35
Freedom from worry_ACSI	male	35	4.00	1.59	.27
	female	22	4.64	1.79	.38
ACSI_Total	male	35	48.14	6.73	1.14
	female	22	48.68	4.02	.86

Above table indicates that the mean and SD of 35 Male athletes in their Coping With Adversity is  $8.17 \pm 1.93$ ; 22 Female athletes in their Coping With Adversity is  $8.32 \pm 1.52$ ; the mean and SD of male athletes in their Coachability is  $5.46 \pm 1.22$ ; female athletes in their task orientation  $6.09 \pm 1.57$ .

The mean and SD of Male athletes in their Concentration is  $9.03 \pm 1.95$ ; Female athletes in their Concentration is  $9.23 \pm 2.43$ ; the mean and SD of male athletes in their Confidence & achievement motivation is  $8.94 \pm 1.24$ ; female athletes in their Confidence & achievement motivation is  $7.77 \pm 1.93$ , the mean and SD of male athletes in their Goal setting & mental preparation is  $6.91 \pm 1.88$ ; female athletes in their Goal setting & mental preparation is  $6.36 \pm 2.08$ ; the mean and SD of male athletes in their

Peaking under pressure is  $5.86 \pm 2.30$  ; female athletes in their Freedom from worry is  $6.27 \pm 1.64$  , the mean and SD of male athletes in their Freedom from worry is  $4.00 \pm 1.59$ ; female athletes in their Goal setting & mental preparation is  $4.64 \pm 1.79$ ; the mean and SD of male athletes in their ACSI(TOTAL) is  $48.14 \pm 6.73$  ;female athletes in their ACSI(TOTAL) is  $48.68 \pm 4.02$ .

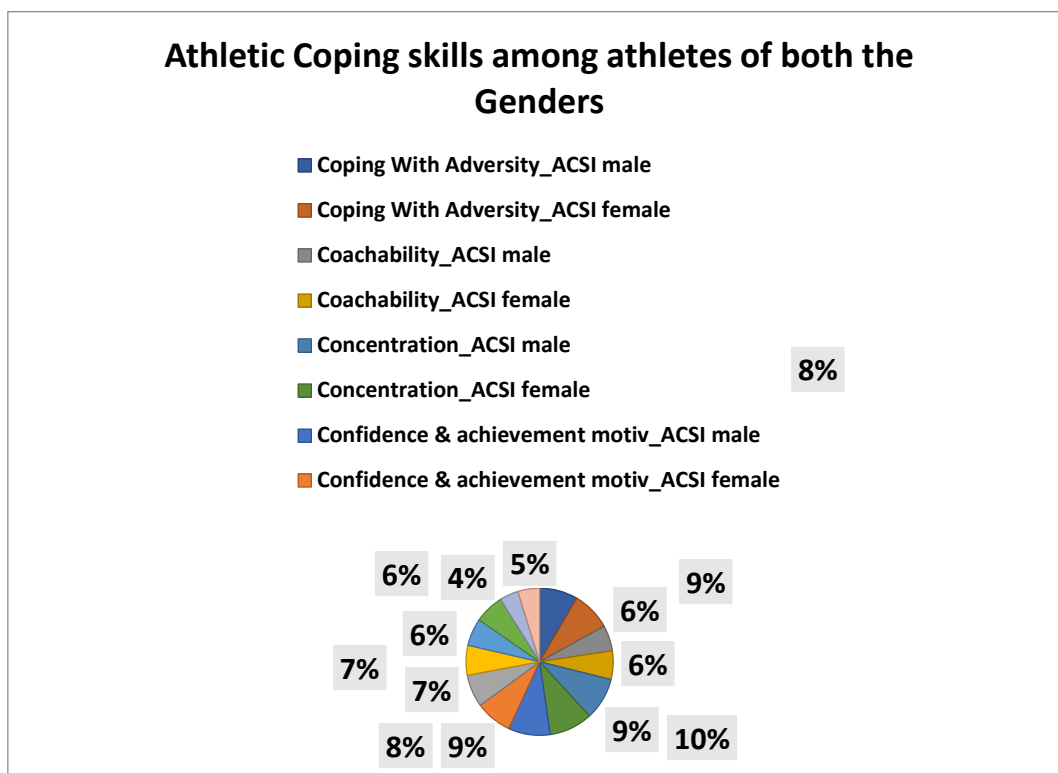


Figure 2. Percentage Value of Athletic coping skills among athletes of both the Genders

Table 3: Comparative Statistics of Athletic Coping Skills Inventory (ACSI) among athletes of both the Genders

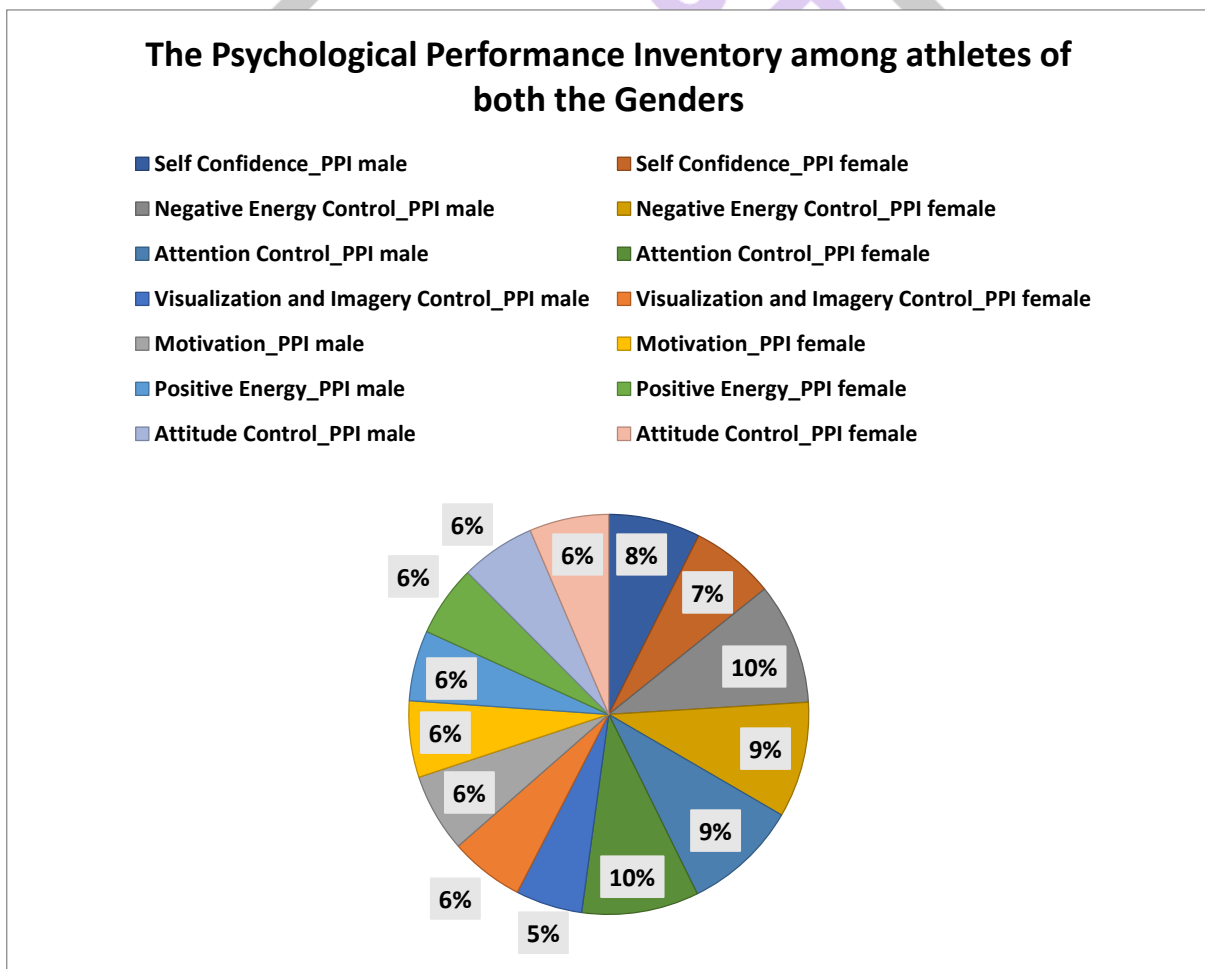
	F	Sig.	t	df	Sig. (2-tailed)	(2-Mean Difference)	Std. Er. Dif
Coping With Adversity_ACSI	4.104	.048	-.302	55	.764	-.147	.486
Confidence & achievement motiv_ACSI	8.758	.005	2.800	55	.007	1.17	.418
Peaking under pressure_ACSI	4.148	.047	-.736	55	.465	-.416	.564
ACSI_Total	4.063	.049	-.339	55	.736	-.538	1.59

Task and ego orientation scores for each level of gender were normally distributed, as assessed by Shapiro-Wilk's test ( $p > .05$ ), and there was homogeneity of variances, as assessed by Levene's test for equality of variances ( $p = .847$ ). The coping of adversity of  $t(55) = -.302$ ,  $p = .764$ , coachability of  $t(55) = 1.706$ ,  $p = .094$ , concentration of  $t(55) = -.341$ ,  $p = .735$ , confidence and achievement motivation of  $t(55) = 2.8$ ,  $p = .007$ , goal setting and mental preparation of  $t(55) = 1.031$ ,  $p = .307$ , peaking under pressure of  $t(55) = -.736$ ,  $p = .465$ , Freedom from worry of  $t(55) = 1.402$ ,  $p = .167$  and ACSI\_Total of  $t(55) = -.339$ ,  $p = .736$ , male and female athletes of various sports were found to be insignificant as p value was greater than .005.

**Table 4: Descriptive Statistics of Psychological Performance Inventory among athletes of both the Genders**

Gender		N	Mean	Std. Deviation	Std. Error Mean
Self Confidence	Male	35	15.40	2.50	.42
	Female	22	14.09	1.93	.41
Negative Energy Control	Male	35	20.34	3.39	.57
	Female	22	19.41	2.68	.57
Attention Control	Male	35	19.31	3.46	.59
	Female	22	19.64	4.10	.87
Visualization and Imagery Control	male	35	11.17	3.17	.54
	female	22	12.45	4.48	.96
Motivation	male	35	13.17	2.99	.50
	female	22	12.82	3.20	.68
Positive Energy	male	35	11.83	2.99	.51
	female	22	11.91	2.99	.64
Attitude Control	male	35	12.51	2.90	.49
	female	22	13.32	3.94	.84

Above table indicates that the mean and SD of 35 Male athletes in their Self Confidence is  $15.40 \pm 2.50$ ; 22 Female athletes in their Self Confidence is  $14.09 \pm 1.93$ ; the mean and SD of male athletes in their Negative Energy Control is  $20.34 \pm 3.39$ ; female athletes in their Negative Energy Control is  $19.41 \pm 2.68$ ; the mean and SD of male athletes in their Attention Control is  $19.31 \pm 3.46$ ; female athletes in their Attention Control is  $19.64 \pm 4.10$ ; the mean and SD of male athletes in their Visualization and Imagery is  $11.17 \pm 3.17$ ; female athletes in their Visualization and Imagery is  $12.45 \pm 4.48$ ; the mean and SD of male athletes in their Motivation is  $13.17 \pm 2.99$ ; female athletes in Motivation is  $12.82 \pm 3.20$ ; the mean and SD of male athletes in their Positive Energy is  $11.83 \pm 2.99$ ; female athletes in their Positive Energy is  $11.91 \pm 2.99$ , the mean and SD of male athletes in their Attitude Control is  $12.51 \pm 2.90$ ; female athletes in their Attitude Control is  $13.32 \pm 3.94$ .



**Figure 2. Percentage Value of the Psychological Performance Inventory among athletes of both the Genders**

**Table 5**  
**Comparative Statistics of Psychological Performance Inventory among**  
**athletes of both the Genders**

	F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
Self Confidence_PPI	.523	.473	2.095	55	.041	1.309	.625

The self-confidence of  $t(55) = 2.095, p = .041$  was found to be significant as  $p$  value was less than .005. The self-confidence of male athletes is  $15.40 \pm 2.50$  more than the female athletes in their Self Confidence is  $14.09 \pm 1.93$ .

## CONCLUSION

TEOSQ is to assess individual differences in goal perspectives in sport settings

- At this moment the profiling can very well be done but being a pilot project it was seen that how do the athlete take this type of test as a way and means for their performance enhancement. It was felt that they were curious to know regarding the result of their own characteristic.
- Psychological characteristic findings verified current sport psychological research on psychological characteristics associated with peak performance (Williams & Krane, 2001). They also suggest that adaptive perfectionism, dispositional hope, and high levels of optimism are new variables to consider. Results are also discussed relative to Bloom's (1985), Côté's (1999) and Csikszentmihalyi, Rathunde, Whalen, and Wong's (1993) talent development research.
- Practical implications focus on implementing parenting and coaching practices related to the development of psychological characteristics associated with athletic success.

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