

CONTRIBUTION OF PSYCHOLOGICAL SKILLS IN RUNNING PERFORMANCE OF NATIONAL LEVEL SPRINTERS

Dr. Rajkumar Sharma*

ABSTRACT

Participants of competitive sports, have to be more alert and attentive to the task in hand to give the desired level of performance during the competitive situation. There are such important psychological competitive requirements, which if not fulfilled by the participants will lead to disastrous failure of performance. The purpose of the study was to investigate the contribution of psychological skills to sprinting performance. A purposive sample of forty one national level male sprinters from various national level athletics championship were selected as the subjects for this study. The ACSI-28 -Athlete Coping Scale Inventory-28 (Smith et al. 1995) is a sport-specific scale consisting of 28 items multidimensional inventory that measures the psychological characteristics of athletes on seven subscales was employed on all the subjects. For collection of data, the subjects were contacted personally by the scholar with their coaches at the site of respective Championships and their sincere cooperation was solicited. To investigate the psychological skills on seven sub-scales for national level male Sprinters, means and standard deviations were computed. Multiple Correlation and Regression analysis were computed to find out the contribution of different psychological skills to sprinting performance. The results of study revealed that the sprinting performance of male sprinters was significantly correlated only with coach ability factor of psychological skills. The selected psychological variable did not significantly predict 100 meter sprinting performance of male sprinters.

Keywords: Male, sprinter, Psychological Skills, National level, Indian

* Grade-1 Gymnastic Coach, Sport Authority of India, Department of Sports and Youth Welfare, Bilaspur (Chhattisgarh)

INTRODUCTION

The sport performance of an athlete or a team does not only depend on the good physical and technical preparation, but it is also the result of the combination of physical and psychological factors, perfectly placed in the frame of a training which promotes performance (Martin, Carl & Lehnertz, 2000). According to Lazarus (1991), psychological skills describe the knowledgeable, emotional and behavioral effort of a person trying to face the external and internal demands which lie ahead.

Numerous factors that are believed to be contributory for an outstanding performance. Psychological factors are influencing more than another factors, which is no longer a misnomer but accepted fact. Goal orientation helps an athlete to raise the standard of training and performance in competition. Whereas, coping skills protects human being from psychological harm by challenging experiences in their lives. Finally participation motivation addresses the general questions of why and how athletes become actively involved in sport. Along with many other disciplines, psychology has recognized the importance of individual differences such as gender in teaching and research. (Jayashree, Amina and Shailaja, 2009).

Psychological skills currently most focused on in sport include arousal, mental imagery, attention, concentration, self-confidence, goal setting and motivation (Wann & Church, 1998; Weinberg & Gould, 2007).

Psychological skills are important characteristics of sport performance. The considerable emphasis has been directed at identifying relevant skill and instructing sport consultant, coaches, and athletes in how to teach, learn, and apply them (Williams, 1993). Moreover, there is an evidence that psychological skills have a relationship with sport performance (Gabril, & Perkins, 1987; Gould, Weiss, & Weinberg, 1981; Mahoney, 1989 Greenspan & Feltz, 1989) and injury vulnerability. Finally, psychological skill are often important result variables in performance enhancement intervention program, and it is therefore important to be able to assess change in such skills as a means of evaluating program efficacy (Smith, 1980, 1989b). For all of these reasons, it is planned for assessment of psychological skills of Indian Athletes in reference to their performance

The ACSI-28 accounted for as much variance in batting average as did physical skills. For pitching, the psychological measures accounted for much more variance in earned run average than did physical skills (Smith and Christiansen, 1995). The psychological factors that influence soccer performance could provide important information to improve the athlete's preparation for the game and lead to intervention methods to improve fair play (Junge et al., 2000). Successful and non-successful athletes differ significantly on self-confidence and competitiveness (Jacques & Van, 1996). Mental qualities and preparation factors are important in the athletic and personal development of elite track and field athletes (Vernacchia et. al., 2000). Sport psychological skill levels differ from one position to another in the game rugby (Andrew, 2006). Peaking under pressure and 'coach-ability' appeared to be strong predictor variables for earned run average, and coach-ability' for batting average (Kimbrough, Louisa, & Balkin, 2007). Adversity and coach ability is affected by the age groups of the athletes. Older athletes were better prepared to cope with the psychological distress involved in the play of badminton and reported better self-control on emotions (Bebetsos and Antoniou, 2003). Personal coping ability is effected by the level of achievement in gymnastics (Waples, 2003). Psychological skills may affect performance in differing ways

throughout competition (Thelwell, Greenlees & Weston, 2010). Free diving sport has positive effects on situational and stable psychological characteristics (Alkan & Akis, 2013).

Similarity was seen in seven dimensions of psychological characteristics among university male athletes of different levels. Inter-university and All India level male athletes expressed significant difference on goal setting and mental preparation (Sharma & Nigam, 2011). Male basketball players at different levels of performance showed the significant differences on specific psychological skills. But significant difference was not observed between juniors and youth national boys basketball players on coping with adversity and peaking under pressure (Yadav, Shukla and Yadav, 2012). Yadav (2014) revealed that the level of coping with adversity and peaking under pressure was significantly high among university judokas compared with national level judokas, The freedom from worry was significantly high among national level judokas compared with the university level judokas. However, other psychological factors did not show any significance of difference among achievement in university and national level competitions. Indian Judo players at International, National and Inter-university levels, as whole, had similarity in adversity, coach-ability, concentration, confidence, and goal setting factors of psychological characteristics. But they exhibited different psychological ability for pressure and worry (Shrivastava, 2014). Heinrich & Maryke (2011) showed that the goal attack and wing defense players firmly out performed than other positional groups, while the goal shooters showed the lowest psychological skill levels. Harrison (2013) showed that a level of worry was experienced in the higher performing athletes, yet no other psychological skills were predicted by the presence of a coach. Jooste Barend, & Linda (2014). indicated that the psychological skill demands differ among players in different playing positions and did not have positive correlation between team success and psychological skills.

The correlation was found among confidence, goal setting, and mental preparation subscales of ACSI-28 (Baltzell, 1999). The confidence and achievement motivation and Peaking under Pressure were significant predictors and robust correlates of athletic performance (Christiansen, 2000). Psychological skills are the predictor of outstanding performance in adulthood (Morris, 2000). The correlations amongst trait anxiety, sport confidence, and coping were yielded in athletes. Confidence was positively associated with coping with adversity and negatively with anxiety (Cresswell & Hodge, 2004)

The purpose of the study was to (a) assess the predictability of psychological skills (b) to assess the sprinting performance of 100 meter male sprinters between selected psychological skills. It was hypothesized that: The selected psychological skills will significantly predict the 100 meter and 200 meter sprinting performance

METHODOLOGY

Selection of Subjects:

A purposive sample of forty one national level male sprinters, who participated in 72nd All India Inter-university Athletic Meet (M/W) held at Bangalore and 18th Federation Cup National Athletics Championship held at NIS Motibagh, Patiala and 54th National Athletics Championship held at PAC Ground, Lucknow (U.P.) were selected as the subjects for this study.

Description of Questionnaire:

The ACSI-28 -Athlete Coping Scale Inventory-28 (Smith et al. 1995) is a sport-specific scale consisting of 28 items. It is a multidimensional inventory that measures the psychological characteristics of athletes on seven subscales. The scales are summed to yield a Personal Coping Resources score, which should reflect a multifaceted psychological skills construct. Each subscale consisted of four items. The ACSI-28 has demonstrated test-retest reliability (.47 to .87) and internal consistency for the subscales were accepted (from .64 to .81). ACSI-28 demonstrated a full scale internal consistency of .86 with all subscales ranging from .62 to .78 (Smith et al. 1995)

Administration of Questionnaire:

For collection of data, the subjects were contacted personally by the scholar with their coaches at the site of respective Championships and their sincere cooperation was solicited. Respondents were called to a common place. Necessary instructions were provided to the subjects before the administration of questionnaire. Confidentiality of the responses was guaranteed so that the subjects cannot camouflage their real feelings. After completion the Questionnaires were collected and scored.

Statistical Analysis:

To investigate the psychological skills on seven sub-scales for National level male and female Sprinters, means and standard deviations were computed. Multiple Correlation and Regression analysis were computed to find out the contribution of different psychological skills to sprinting performance. The level of significant was set at .05 level.

RESULTS AND DISCUSSION

Descriptive statistic on sprinting performance (100 meters and 200 meter) and zero order correlation coefficients between sprinting performance and psychological skills of male and female athlete were computed, in order to find out the predictability of psychological skills regression analysis by enter method was employed. The data has been presented in table 1 to 3 and has been depicted in figure 1

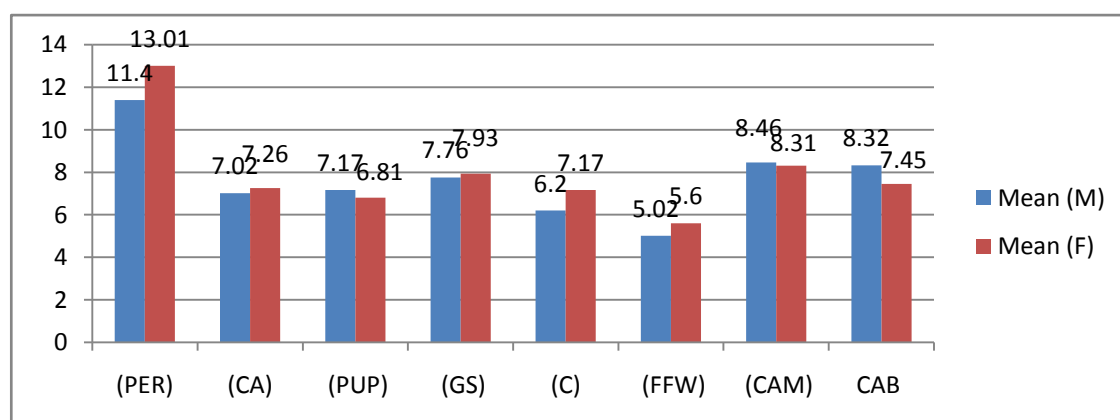


Fig 1 : Mean Score on Sprinting Performance and Psychological Skills of 100 Meter Male and Female Sprinters

TABLE 1
DESCRIPTIVE STATISTICS AND CORRELATION/COEFFICIENT OF/AND
BETWEEN SPRINTING PERFORMANCE AND PSYCHOLOGICAL SKILLS
OF 100 METERS
MALE SPRINTERS

Variables	Mean	SD	PER 1	CA 2	PUP 3	GS 4	C 5	FFW 6	CAM 7	CAB 8
(PER)	11.40	0.52	1	0.85	-0.08	0.013	0.071	0.232	0.091	.323*
(CA)	7.02	2.07		1	0.599	0.619	0.938	0.659	0.145	0.572
(PUP)	7.17	2.99			1	0.337	.600*	0.262	.622*	0.139
(GS)	7.76	1.83				1	0.218	0.067	.648*	.400*
(C)	6.20	1.82					1	0.209	.400*	.372*
(FFW)	5.02	1.98						1	0.114	0.035
(CAM)	8.46	2.59							1	0.085
CAB	8.32	2.34								1

* Significant at the 0.05 level

Data in table 1 indicated that sprinting performance of male sprinters was significantly correlated only with coach ability (CAB) ($r=0.32$). All other dependent variable had insignificant correlation with 100 meters sprinting performance of male sprinters.

TABLE 2
MULTIPLE CORRELATION FOR THE PREDICTORS OF 100 METER SPRINTING PERFORMANCE OF MALE SPRINTERS

Model	R	R Square	Adjusted Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	Df 1	Df 2	Sig. F. Change
1	.448a	.201	.031	.51212	.201	1.184	7	33	.338

Coefficients:-

Variables	B	SEB	β	t	Sig.
Performance(time in seconds)	10.614	0.578		18.361	.000
Coping with adversity	0.019	0.040	0.076	.475	.638
Peaking under pressure	-0.019	0.041	-0.109	-.461	.648
Goal setting & mental preparation	-0.053	0.590	-0.187	-.901	.374
Concentration	0.011	0.058	0.039	.190	.850
Freedom from worry	0.043	0.483	0.164	1.003	.323
Confidence and achievement motivation	0.028	0.053	0.141	.531	.599
Coach Ability	0.081	0.040	0.363	1.999	.054

The multiple correlation Coefficient (R) using all the predictors simultaneously, is .45 ($R^2=0.20$) and the adjusted R^2 is 0.03, meaning that only a negligible 0.03 % of variance in 100 meter sprinting performance of male sprinters can be predicted from selected psychological skills.

TABLE 3
ANOVA FOR REGRESSION ANALYSIS FOR 100 METERS MALE SPRINTERS

Model	Sum of Squares	df	Mean Square	F
Regression	2.175	7	0.311	1.184*
Residual	8.655	33	0.262	
Total	10.829	40		

* Insignificant at .05 level

The ANOVA in table 3 shows that $F=1.184$ is statistically insignificant at 0.05 level indicating that combination of predictors i.e. selected psychological variable did not significantly predict 100 meter sprinting performance of male sprinters.

DISCUSSION

Descriptive statistic on sprinting performance (100 meters) and zero order correlation coefficients between sprinting performance and psychological skills of male and female athlete were computed, in order to find out the predictability of psychological skills regression analysis by enter method was employed. Analysis of data of 100 meter male sprinters on sprinting performance and psychological skills indicated that sprinting performance of male sprinters was significantly correlated only with coach ability (CAB) ($r=0.32$). All other dependent variable had insignificant correlation with 100 meters sprinting performance of male sprinters. The multiple correlation Coefficient (R) using all the predictors simultaneously is 0.45 ($R^2=0.20$) and the adjusted R^2 is 0.03, meaning that only a negligible 0.03 % of variance in 100 meter sprinting performance of male sprinters can be predicted from selected psychological skills. The ANOVA showed that $F=1.184$ is statistically insignificant at 0.05 level indicating that combination of predictors i.e. selected psychological variable did not significantly predict 100 meter sprinting performance of male sprinters.

CONCLUSION

Sprinting performance of male sprinters was significantly correlated only with coach ability. All other dependent variable had insignificant correlation with 100 meters sprinting performance of male sprinters. Finally, the selected psychological skills do not predict 100 meter sprinting performance of male sprinters

FUTURE DIRECTION FOR RESEARCH

Research has disclosed that a minimum of fifty % of athletic performance successes and even a lot of athletic performance errors and failures are owing to mental factors. Often times, skills plus physical and technical training will take athletes and groups solely up to now before they reach a performance upland. It's mental training which will carry them to subsequent level. It's vital to recollect that these psychological skills are learned, practiced and applied in each coaching and competition things. These skills are useful if athletes are committed to swing the time and energy into learning and mastering them. The results of the study can educate the coaches, trainers and education lecturers regarding the psychological skills required to perform with success at totally different levels of athletic performance. The findings of this study are doubtless to produce pointers for making ready psychological ability coaching programme for athletes.

BIBLIOGRAPHY

- Wann, D., & Church, B.** "A Method for Enhancing the Psychological Skills of Track and Field Athletes" Track coach, (1998) :114. Retrieved May 17, 2005, from www.coachr.org/psychskills.htm.
- Jayashree, Acharya., Amina S and Shailaja, Mohan** "Gender based Analysis of Sport Goal Orientation, Coping Skills and Participation Motivation of Athletes in Kerala" The 12thISSP World Congress of Sport Psychology Marrakesh - June 17- 21, 2009
- Weinberg, R.S., & Gould, D.** Foundations of sport and exercise psychology (4thed.). Champaign, Illinois: Human Kinetics, 2007.
- Martin, D., Carl, K., Lehnertz, K.** "Coaching Manual". Connecting Theory to Practice. Komotini: NL favito.
- Lazarus, R. S. 1991.** Emotion and Adaptation. New York : Oxford Univ. Press.
- Cresswell, Scott and Hodge, Ken.** "Coping skills: role of trait sport confidence and trait anxiety". Perceptual and Motor Skills: 98 (2004) : 433-438.
- Christiansen, D. S.** "Self-efficacy, Cognitive Interference, Sport Anxiety, and Psychological Coping Skills as Predictors of Performance in Inter-collegiate Golf". Unpublished doctoral dissertation, University of Washington, 2000.
- Baltzell, A.** "Psychological Factors and Resources related to Rowers' Coping in Elite Competition". Unpublished Doctoral Dissertation, Boston University School of Education, Boston, 1999.
- Smith, R. E. & Christiansen, D.S.** "Psychological Skills as Predictors of Performance and Survival in Professional Baseball". Journal of Sport and Exercise Psychology, 17 :3 (1995) :399-415.
- Morris, T.** "Psychological characteristics and talent identification in soccer" Journal of Sports Sciences 18 : 9 (2000) : 715-726.
- Junge et.al.** "Psychological and Sport-Specific Characteristics of Football Players" The American Journal of Sports Medicine. 28 (September, 2000):22-28.
- Jacques, H. A. and Van, Rossum,** "Psychological Characteristics of Elite Athletes According to Top Level Coaches" High Ability Studies 7:1 (1996) : 15-23.
- Vernacchia. et.al.** "Psychosocial Characteristics of Olympic Track and Field Athletes". International Journal of Sport Psychology 31 : 1 (2000) : 5-23
- Andrew, Michelle** "Sport Psychological Skill Levels and Related Psychological Factors that Distinguish between U/19 Club Rugby Players of Different Participation Levels and positional Groups". Unpublished Master of Science Thesis, North-West university, Potchefstroom, 2006.

- Kimbrough, Sandy., DeBolt, Louisa and Balkin, Richard S.** "Use of the Athletic Coping Skills Inventory for Prediction of Performance in Collegiate Baseball". Sport Journal, 10 :1 (January, 2007) :4
- Bebetsos E. and Antonion, P.** "Psychological Skills of Greek Badminton Athletes". Perceptual Motor Skills. 97 : (3-2) (December, 2003) :1289-1296.
- Waples, Steven B.** "Psychological Characteristics of Elite and Non-Elite Level Gymnasts". Unpublished Doctoral Thesis. Texas A & M University, 2003.
- Thelwell, Richard C., Greenlees, Iain A. and Weston, Neil J.V.** "Examining the Use of Psychological Skills Throughout Soccer Performance' Journal of Sport Behavior, 33 :1 (March, 2010) :109.
- Alkan, Nese and Akis, Tolga.** "Psychological Characteristics of Free Diving Athletes: A Comparative Study" International Journal of Humanities and Social Science 3 :15 (August, 2013) : 150
- Sharma R. K. & Nigam, A. K.** "Psychological Characteristics of Male University Athletes". Journal of Physical Education and Sport. 11 : 1 (2011) : 5-17.
- Yadav, S. K., Shukla, Uday Narayan and Yadav, Avinash** "Assessment of Specific Psychological Skills of Basketball Players of Different levels of Achievement" International Journal of physical Education, Sports and Yogic Sciences 2:1 (November, 2012) : 38-40
- Heinrich, Grobbelaar W. & Maryke, E.** "Psychological Skills of Provincial Netball Players in Different Playing Positions" South African Journal for Research in Sport, Physical Education and Recreation, 33 :2 (2011): 45-58.
- Harrison, Grant,** "Psychological Skills, Coaching, and Performance of Cyclo-cross Athletes", Unpublished Master's Thesis, University of Wisconsin, Lacrosse, 2013
- Mahoney, Michael J., Gabriel, Tyler J. & Perkins, Scott T.** "Psychological Skills and Exceptional Athletic Performance" The Sport Psychologist 1:3 (September, 1987) :181-199.
- Daniel Gould, Maureen Weiss and Robert Weinberg** "Psychological Characteristics of Successful and Nonsuccessful Big Ten Wrestlers" Journal of Sport Psychology. 3 (1981) : 69-81.
- Williams, J.M.** Applied sport psychology: Personal growth to peak performance (2nd ed.). Mountain View, CA: Mayfield, 1993.
- Michael J. Greenspan and Deborah L. Feltz,** Psychological interventions with athletes in competitive situations: A Review, The sports psychologists . 3 (1989) : 218-236.
- Smith, R.E. (1980).** A cognitive-affective approach to stress management training for athletes. In CH. Nadeau, W. Halliwell, K.M. Newell, & G.C. Roberts (Eds.), Psychology of motor behavior and sport-1979 (pp. 54-72). Champaign, IL: Human Kinetics.

Smith, R.E. “Effects of coping skills training on generalized self-efficacy and locus of control”. Journal of Personality and Social Psychology. 56 (1989b) : 228-233.

Jooste, Julius; Steyn, Barend J. M.; Van Den Berg, Linda “Psychological skills, playing positions and performance of african youth soccer teams”, South African Journal for Research in Sport, Physical Education . 36: 1 (2014) :85.

Yadav, S. K.; Shukla, Uday Narayan and Yadav, Avinash “Assessment of specific psychological skills of basketball players of different levels of achievement” International Journal of Physical Education, Sports and Yogic Sciences. 2 : 1 (November, 2012): 38-40