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Analytical study of psychological, cultural & gender factors contributing to stress among cyclists in competitive situations

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Abstract

The aim of the present study is to investigate the contribution of Locus of Control, Communal tension and Gender to stress among cyclists in competitive situations. For this purpose Locus of Control Scale, LCS-HJ (Hasnian and Joshi, 1985), Communal Scale of Tension (Bhardwaj, 1985) and Stress Scale, SS-LVNS (Lakshmi and Shruti, 2014) were used. The tests were administered a day before the competition to ninety six male and eighty eight female cyclists (18-25 years), randomly selected from various educational and sports institutes. Pearson product-moment correlation and ANOVA were carried out to analyze the data.

Results indicated that locus of control and communal tension have no significant relation with stress. It was observed that there were no significant gender differences in locus of control and communal tension but male and female cyclists differed significantly in their stress scores where female cyclists experienced higher level of stress in a competitive situation than their male counterparts. The study has significant implications for the identification of planned interventions with focus on athletic perceptions, stress coping strategies and relaxation techniques

Keywords: Locus of control, communal tension, gender and stress among cyclists

Introduction

Locus of Control: The extent to which one feels that he can exercise control over situations affecting his life, explains the concept of locus of control. According to the psychologist Zimbardo (1985) [30], "A locus of control orientation is a belief about whether the outcomes of our actions are contingent on what we do (internal control orientation) or on events outside our personal control (external control orientation)".

Psychologist Julian Rotter (1954) [24] believed that behavior is determined by rewards and punishments. It is the outcome of an individual's actions that affects the beliefs regarding the causal factors of such actions. These beliefs about the causes of one's actions further influence one's behavior and attitudes. Rotter stated that 'locus of control is a continuum', with internal locus of control at one end and external locus of control at the other. The construct of locus of control reflects whether an individual perceives the cause of behavior to be within his/her personal control. It means the extent to which individuals believe that they can control events and causes of their actions. It may be defined as the perceptions one holds regarding personal responsibility for success or failure (Wood & Olivier, 2004) [29]. Locus of control refers to a predisposition in the perception of what causes reinforcement (Kormanik & Rocco, 2009) [16].

Individuals who are external in the light of locus of control, have a lack of control on their life and they believed that what happened for them is a result of external factors such as chance, fate, other people and like them. In other words, they don't have any active role in their life. Individuals, who have internal control, know themselves as a ruler of their fate and undertake responsibility of their success and failure. Internals are more dominants on the behavior flow and have active manner while externals are more passive and non-active. The internal locus of control is accompanied with recognition, justice and realistic approach. While external locus of control has sentimental, lack of recognition, no justice against events or causes of behavior (Samaei *et al.* 2012) [25]. It has been noted that internal control beliefs are an ability to handle stress in general life and at work. Persons who are internally oriented make more attempts to

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acquire information, are less rootless, and display greater work motivation. They tend to expect that hard work leads to good performance, and feel more control over their time and outcomes.

Kishore (2016) ^[15] comparatively investigated the role of locus of control among different sports categories and found no significant differences in locus of control among the players of combat and non-combat sports.

Kazemi *et al.* (2015) ^[14] in their study examined the relationship between locus of control and mental health in student athletes and non-athletes of Tehran University and found that athlete students were better than non-athlete students in internal locus of control and general health.

Communal Tension

Basic social, educational and cultural values form the building blocks of human activity and sports. At times, violence has been observed in sports across the globe, and causes of which are generally attributed to racial, cultural or religious sentiments. In India, communal hatred and tension have been considered the crucial factors contributing to the history of violence in sports. Prejudice and discrimination on the basis of caste have been rising alongside the acquisition of negative attitudes and stereotypes during the course of socialization. Rarely based on our first hand experiences, these powerful attitudes direct our behavior and are rooted in false information, personal impressions and hearsay (Bohra, 1979) ^[4].

Stress: Stress is the state created by the circumstances that place physical or psychological demands on an individual. Selye defined stress as the “nonspecific response of the body to any demand made upon it” (Selye, 1983, p. 2) ^[26]. His stress model ‘General Adaptation Syndrome’ thoroughly explains the stress response and problems caused by chronic exposure to stress. It states that an event that threatens an organism’s well-being (a stressor) leads to a three-stage bodily response: Stage 1-Alarm, Stage 2-Resistance and Stage 3-Exhaustion.

The first stage-‘Alarm reaction’, involves an initial shock phase and a subsequent counter shock phase. The shock phase is characterized by the autonomic excitability, increased adrenaline discharge, and gastro-intestinal ulcerations, whereas the counter shock phase marks the beginning of usage of defensive processes and is characterized by increased adrenocortical activity. The organism enters the second stage that is ‘Resistance’, if the unpleasant stimulation continues. The symptoms of the ‘Alarm reaction’ stage start to disappear, indicating the organism's adaptation to the stressor. With the increase in resistance to the noxious stimulation, resistance to other kinds of stressors decreases. As the aversive stimulation persists, resistance gives way to the stage of ‘Exhaustion’. Here, the organism's capability of adapting to the stressor is exhausted and the symptoms of the first stage reappear, but resistance is no longer possible.

Gender: Gender is a social construct used to assign a set of appropriate behaviors to a particular sex. According to Parratt (1994) ^[20], gender is an ever evolving social concept. It outlines the behavior that society expects from its men and women. In the context of sports, it is the differentiation between the sexes, as to what sports boys and girls should play. Across the span of time, society has frequently clarified the sports appropriate for boys (i.e. football, wrestling and boxing) and for girls (dance, gymnastics and figure skating).

Though there are studies that identify sex as a major determinant of athletic performance through the impact of height, weight, body fat, muscle mass, aerobic capacity or anaerobic threshold, as a result of genetic and hormonal differences (Perez-Gomez *et al.* 2008) ^[22].

Competitive Situation: A competitive situation is one in which the performance of participants, is evaluated by others; It is a condition in which individuals compete with each other for rewards that can either be internal or external. It is the environmental or competitive situations that induce stress in an individual. In sports, the situation is the stimulus and it has been evident that situation by itself is not stressful. It is the way an athlete perceives the situation that makes it either stressful or not.

Statement of the Problem

The present study entitled “Analytical Study of Psychological, Cultural & Gender Factors Contributing to Stress among Cyclists in Competitive Situations” explores the contribution of the following factors in Stress.

1. Psychological factor-Locus of Control
2. Cultural factor-Communal Tension
3. Gender

Methodology and Procedure

Selection of Subjects

In the present research, the sample included 184 cyclists (96 males & 88 females) of inter university and national level, of age group 18-25 years. This sample of cyclists was drawn randomly from various educational and sports institutes, which included colleges, universities, sports academies and organizations.

Design of the Study: The investigator framed two levels for each variable-Locus of Control (Internally Controlled and Externally Controlled), Communal Tension (High Tension and Low Tension) and Gender (Males and Females).

Procedure: Ninety-six male and eighty-eight female cyclists (18-25 years) were tested on various psychological and cultural variables that contributed to stress among cyclists in competitive situations. The tests were administered to the subjects, a day before the competition and the respective scores were listed.

Administration of Tests

Administration of the tests was carried out a day before inter university and national competitions. The subjects were made cognizant about the significance of the study, prior to the administration of the tests. They were briefed and asked to respond as per the instructions of the investigator. It was ensured that all the items of the tests were answered by the subjects. The confidentiality of the subjects and their scores was also maintained.

Stress Scale ‘SS-LVNS’ (Hindi version by Dr. Vijaya Lakshmi & Dr. Shruti Narain, 2014) ^[17] was administered to obtain scores on dimensions of pressure, physical stress, anxiety and frustration. Locus of Control Scale ‘LCS-HI’ (Hindi version by Dr. N. Hasnian & Dr. D. D. Joshi, 1992) ^[12] was used to measure the internal and external locus of control of the cyclists. The Comprehensive scale of Tension by Rajeevlochan Bhardwaj (1985) ^[2] was used to measure the cultural variable, i.e. the communal tension among the cyclists.

Test Materials

Taking into consideration the objectives of the study, following tests were chosen for administration and data collection.

Stress Scale 'SS-LVNS' (Hindi version by Dr. Vijaya Lakshmi & Dr. Shruti Narain, 2014) [17]

Addressing the need to measure exclusive stress dimensions, Stress Scale 'SS-LVNS' (Hindi version by Dr. Vijaya Lakshmi & Dr. Shruti Narain, 2014) [17] was selected. The dimensions of the scale are as follows:

- Pressure, involves expectations or demands placed on individuals to behave in a particular way, across various situations viz., doing well in academics, sports, approval of parents, peers etc.
- Physical stress, often reflected in headaches, fatigue, muscle tension and elevated heart rate etc. is the stress endured over a long period of time leading to diminished health of the individual.
- Anxiety, often experienced as an unpleasant emotional state accompanied by physiological arousal and cognitive elements as apprehension, guilt along with the sense of impending disaster.
- Frustration, arising in situations, where the pursuit of the goal is obstructed.

The scale has four stress dimensions and consists of 40 items. Responses of each item are taken in either 'Yes' or 'No'. This scale can be used on adolescents and adults within the age range of 12-24 years and can be administered either by self or by the investigator and may be used in groups as well as individual conditions. There is no fixed time limit as such. However, it generally takes about 10-15 minutes for its completion. Test-retest Reliability of the Stress Scale 'SS-LVNS' (Hindi version is 82.

The answers of those items that tally with scoring key are given a score of +1 and if they do not, then a score of 0 is given. higher the score, greater is the level of stress. The subjects can be classified into three categories viz., High, Moderate and Low levels of Stress on the basis of the raw scores for each dimension separately and also for a total score on the stress scale.

Locus of Control Scale 'LCS-HJ' (Hindi version by Dr. N. Hasnian & Dr. D. D. Joshi, 1985)

To determine the locus of control in cyclists, the Locus of Control Scale 'LCS-HJ' constructed by Dr. N. Hasnian & Dr. D. D. Joshi (1985) was selected. It is a 3-point scale that consists of 36 items, out of which 16 items are 'positive' and 20 are 'negative'. The subjects have to respond in terms of 'Always', 'Sometimes' and 'Never'. It is a self-administering test with simple and self-explanatory instructions printed on the cover page of the test booklet. Test can be administered either individually or in groups.

Reliability of LCS was measured with Spearman Brown Prophecy Method and Test-Retest Method and was found to be 0.55 and 0.76 respectively A three point scale was used to identify internal locus of control and external locus of control. Scores of 2, 1 and 0 were assigned to 'always', 'sometimes' and 'never' responses of positive items and 0, 1 and 2 scores were assigned for responses of negative items. Since, the positive items are related with internal locus of control, the higher the score on the scale, the more internally oriented the individual will be. The highest score on the scale is 72 and the lowest is 0.

Comprehensive Scale of Tension (Rajeevlochan Bhardwaj, 1985) [2]

The present Comprehensive Scale of Tension (Rajeevlochan Bhardwaj, 1985) [2] has been constructed with a view to measure the different types of tension, viz. communal tension, caste tension, religious tension, cultural tension, regional tension and language tension. It is a self-administering scale. The scale has 32 items for 10 areas viz., religiosity-5 items; economic-5 items; education-5 items; incidence occurrence-4 items; politics-3 items; social distance-3 items; dominance-3 items; nationality-2 items; linguistic 1 item; and sport-1 item. Each item of the scale has 5 alternative answers with clear instructions at the front of the page. The test is highly reliable and valid for measuring the tension among people. It possesses split-half reliability of 81 through Spearman-Brown Formula and 88 by Guttman Formula. The content validity of the present scale is very high and the theoretical validity is 89. The scoring of the test is very easy and quantitative type. Each item of the scale possesses five alternative answers. All subjects have to tick on any one alternative answer out of five of each item. Five alternatives starting from top to bottom are scored 5, 4, 3, 2 and 1 respectively. The addition of all the achieved scores serves the purpose of the Tension score.

Statistical Techniques

In order to find out how and whether psychological, cultural & gender factors contribute to stress among cyclists in competitive situations, the data was subjected to correlational analysis (Pearson product-moment correlation coefficient) and analysis of variance. Further, 0.05 and 0.01 levels of significance were used to test the hypotheses. Online software was applied for various statistical calculations.

Results and Discussion

Analysis and Interpretation of Results: The main objective of the present investigation was to study psychological, cultural and gender factors contributing to stress and affecting the performance of cyclists in competitive situations. In order to test various hypotheses, the scores of the subjects on Locus of Control, Communal Tension, Stress and Performance were subjected to correlational analysis (Pearson product-moment correlation coefficient) and ANOVA. The statistical findings of the study are presented in Tables 1-5 and Graphical representations of the findings are depicted in Figures 1-2.

Table 1: Means and Standard Deviations of Locus of Control, Communal Tension and Stress of Male cyclists (N= 96)

Variables	Mean	Standard Deviation
Locus of Control	43.22	18.14
Communal Tension	94.07	39.98
Stress	16.51	10.32

Table 1 shows Mean and Standard Deviations of Locus of Control, Communal Tension and Stress of Male cyclists in a competitive situation.

Table 2: Means and Standard Deviations of Locus of Control, Communal Tension and Stress of Female cyclists (N= 88)

Variables	Mean	Standard Deviation
Locus of Control	45.19	18.21
Communal Tension	94.03	40.55
Stress	20.09	11.56

Table 2 shows Mean and Standard Deviations of Locus of Control, Communal Tension and Stress of Female cyclists in a competitive situation.

Table 3: Coefficient of correlation between Locus of Control, Communal Tension and Stress

Variables	Stress
Locus of Control	0.12 n. s.
Communal Tension	0.13 n. s.

Table 3 shows coefficient of correlation (Pearson's r) between Locus of Control, Communal Tension and Stress. The values indicate that the relationship between 'Locus of Control and

Stress' (r =0.12, n.s.) and between 'Communal Tension and Stress' (r =0.13, n.s.), is positive but non-significant.

Table 4: Comparison of Means and Standard Deviations of Locus of Control, Communal Tension and Stress scores for Male and Female cyclists

Variables	Levels	Gender	N	Mean	SD
Locus of Control	External	Males	48	25.63	4.56
	Internal		48	60.81	3.48
	External	Females	44	27.75	6.17
	Internal		44	62.64	3.13
Communal Tension	High	Males	48	132.42	7.66
	Low		48	54.06	6.60
	High	Females	44	133.52	8.62
	Low		44	54.55	7.84
Stress	High	Males	48	26.48	2.87
	Low		48	6.54	1.97
	High	Females	44	31.39	1.96
	Low		44	8.79	2.32

Table 4 presents comparison of Means and Standard Deviations of Locus of Control, Communal Tension and Stress scores for Male and Female cyclists. For comparisons

two levels of each variable were also taken into consideration. Figure 1 shows pictorial representation of the findings.

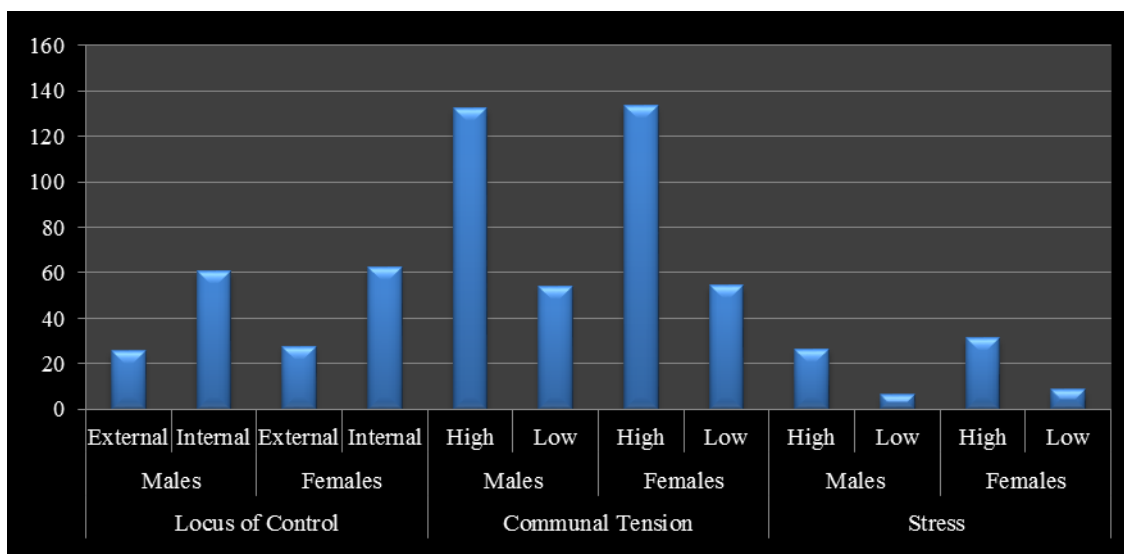


Fig 1: Comparison of Means of Locus of Control, Communal Tension and Stress scores for Male and Female cyclists

Table 5: ANOVA Summary of Locus of Control, Communal Tension and Stress in relation to Gender

Variables	Source of Variation	SS	DF	MS	F-ratio
Locus of Control	Between Groups	178.99	1	178.99	0.54 n. s.
	Within Groups	60094.12	182	330.19	
	Total	60273.11	183		
Communal Tension	Between Groups	28.98	1	28.98	0.02 n. s.
	Within Groups	295206.39	182	1622.01	
	Total	295235.37	183		
Stress	Between Groups	588.60	1	588.60	4.93*
	Within Groups	21731.26	182	119.40	
	Total	22319.86	183		

*p<0.05

Table 5 shows ANOVA summary of Locus of Control, Communal Tension and Stress in relation to Gender. It can be observed from the table values that there are non-significant

gender differences in Locus of Control {F (1,182) =0.54, n.s.}. It means that male and female cyclists do not differ in their Locus of Control orientations. Non-significant gender

differences were also reported in Communal Tension { $F(1,182) = 0.02$, n.s.}. A significant F-ratio { $F(1,182) = 4.93$, $p < 0.05$ } indicated that male and female cyclists differ significantly in their stress scores. From Table 4.1, it is clear that in a competitive situation, female cyclists experience

higher stress ($M = 20.09$, $SD = 11.56$) than their male counterparts ($M = 16.51$, $SD = 10.32$). Comparison of means of locus of control, communal tension and stress in relation to gender has been depicted in Figure 2.

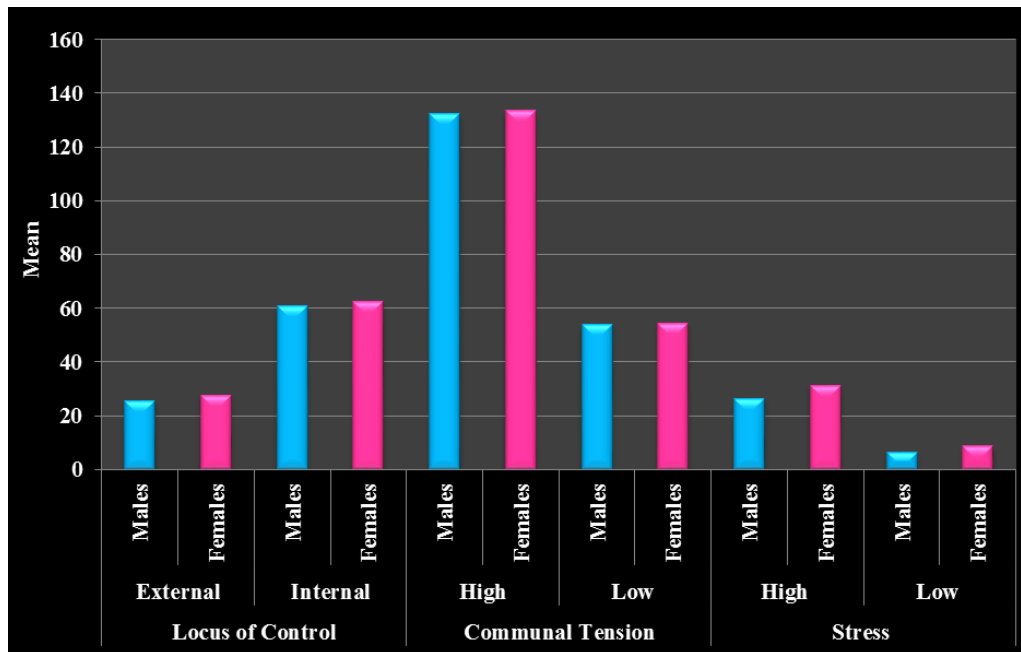


Fig 2: Comparison of Means of Locus of Control, Communal Tension and Stress in relation to Gender

Discussion

Research in recent years has often analyzed factors that underlie performance of athletes in extreme competitive situations in sports. Sports psychologists attempt to examine the effects of various environmental situations on the competitor's mental status, ability to execute sport skills, or both. Whether or not competitors are able to withstand the physical stress of constant conditioning and practice and the mental stress of performing at optimal levels before thousands, sometimes millions of spectators are a matter of concern for athletes, coaches and sports psychologists. Keeping in mind these facts, the present study was done in the context of demanding and challenging competitive environment of sports.

Locus of Control and Stress

The non-significant relationship between locus of control and stress ($r = 0.12$, n.s.) implies that the competitive environment induces almost the same amount of stress in an athlete irrespective of his or her external or internal orientation. Hence, externals experience as much stress as internals during a competitive situation.

Communal Tension and Stress

A very low non-significant relationship between communal tension and stress ($r = 0.13$, n.s.) leads to the conclusion that it is not necessary if a person is high on communal tension will also have a high level of stress.

Locus of Control and Gender

Results of one way analysis of variance applied to scores of locus of control, reveal that non-significant gender differences exist in locus of control { $F(1, 182) = 0.54$, n.s.}, meaning thereby that male and female cyclists do not differ in their orientations of locus of control. Biddle (1993) [3] and Gill (1992) [9] have also concluded from their studies that gender

differences in locus of control among highly skilled athletes are non-existent. Gupta and Joshi (2011) [11] have shown no gender differences in perception of locus of control.

Communal Tension and Gender

Non-significant gender differences in communal tension { $F(1, 182) = 0.02$, n.s.}, indicate that male cyclists experience as much communal tension as the female cyclists.

Stress and Gender

So far Stress is concerned, significant gender differences { $F(1, 182) = 4.93$, $p < 0.05$ }, have been reported where female cyclists experience more stress ($M = 20.09$) than male cyclists ($M = 16.51$) during a competitive situation. Findings of various researchers point to gender differences in stress and anxiety due to societal and cultural influences. Female athletes require greater social support than male athletes, to manage anxiety. The reasons for greater competitive anxiety include societal expectations from females to successfully fulfill their social roles in comparison to males which in turn may affect their performance. Peter *et al.* (1995) [23] revealed that females used higher levels of seeking social support for emotional reasons and increasing effort to manage goal frustration. Jones *et al.* (1991) [13] found that females have high cognitive anxiety and low self confidence levels than their male counterparts. These are determined by readiness to perform and the importance they personally placed on doing well.

To conclude, findings of the present study highlight that locus of control and communal tensions do not contribute to stress among cyclists during competitive situations. Another important contribution of the study is that significant gender differences do exist in stress. In a competitive situation, female cyclists experience higher levels of stress than male cyclists.

Stress plays a crucial role in any competitive situation. For the

optimal use of potentials of an athlete, it has to be within its normal limits. Further, understanding of physical stress can productively assist in developing training sessions and programs for sportspersons, so as to keep track of fatigue whilst maximizing the chances that their potential is efficiently used. While formulating conditioning/training schedules some focus should be on mental training as well, which may include knowledge and training in stress coping strategies and relaxation techniques. It is essential that both athletes and coaches have a positive approach so that they can give best possible performance in complex and stressful circumstances. Their situation demands them to be confident enough to face the challenging situations and tackle them effectively. Athletes need to be hopeful, more resilient and optimistic so that they are able to steer successfully the competitive environment. Gender differences are indicative of the need to develop interventions that are tailored to individual needs. The important role of gender and ethnicity, in the perception of stress, needs to be addressed while formulating effective athletic programs.

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