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## Comparison of stress vulnerability among the selected team sports

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### Abstract

The objective of the study is to assess the level of stress and to compare the stress vulnerability among the athletes of different team sports i.e., basketball, volleyball, football and hockey. And, also assess, whether the stress vulnerability in a population have equal variances.

**Method:** For the purpose of the study the total of 112 (28 male from each team sports) were selected. The subjects were Inter-University athletes at National level from different team sports i.e. basketball, volleyball, football and hockey. And the age of the subjects were ranged from 17 to 28. For the assessment of the data on the stress vulnerability of selected athletes the questionnaire "Stress Vulnerability Scale" developed by Lyle H. Miller and Alma Dell Smith (1989), Boston University Medical Centre and also cited by Werner W.K. Hoeger, "Lifetime Physical Fitness and Wellness". To find out the Stress Level of selected athletes, descriptive statistics was used, and to examine the significance differences of stress vulnerability between selected sports athletes, one way ANOVA was used and the hypothesis was tested at .05 level of significance.

**Results:** the mean and standard deviation of Stress Vulnerability for selected subjects of team sports i.e., basketball ( $28.607 \pm 8.862$ ), volleyball ( $27.571 \pm 7.480$ ), football ( $25.607 \pm 5.685$ ), hockey ( $25.321 \pm 8.563$ ) respectively. The ANOVA results shows that the p-value for stress vulnerability of selected subjects is greater than 0.05 and hence the F- value is insignificant at 5 % level. This show that the selected team sport having similar tolerance of stress caused by training or any other factors related to the training.

**Conclusion:** There is no difference in the stress vulnerability between the selected sports i.e., basketball, volleyball, football and hockey. And however, less level of stress was found in hockey players as comparison to mean score with the others team sports players. The author further suggest that there should be other factors which might bring insignificant difference between the selected team sports and further study can also be done with other sports or increasing subjects or by increasing other psychological variables to make more understanding the real causes of similarities among the selected sports.

**Keywords:** Stress vulnerability, basketball, volleyball, football and hockey

### Introduction

Life stress has long been a popular explanation for physical and mental disorders. The assessment of life stress may more closely approximate the complexity inherent in the ongoing lives of people, without sacrificing the rigor required for a scientific understanding of the concept and its consequences (Monroe & Roberts, 1990) [10]. All athletes, in any sport, must train hard in order to improve performance. Initial hard training causes underperformance but if recovery is allowed, there is super compensation and improvement in performance. Training is designed in a cyclical way (periodisation) allowing time for recovery with progressive overload. When athletes fail to recover from training they become progressively fatigued and suffer from prolonged underperformance. They may also suffer from frequent minor infections (particularly respiratory infections). In the absence of any other medical cause, this is often called the overtraining syndrome, burnout, staleness, or chronic fatigue in athletes. The condition is secondary to the stress of training but the exact cause and pathophysiology is not known. Many factors may lead to failure to recover from training or competition. The psychological stress does impact upon the balance of the immune system in such a way as to be relevant to health outcomes and that the athletic population, in particular those with low self-esteem, may be especially vulnerable due to the probable synergistic effects of both

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physical and psychological stress (Clow, A., & Hucklebridge, F., 2001) [5]. Baron and Kenny (1986) [2] In their study rightly said that we should tried to make theorists and researchers aware of the importance of not using the terms moderator and mediator interchangeably. We then went beyond this largely pedagogical function and delineated the conceptual and strategic implications of making use of this distinction with regard to a wide range of phenomena, including control and stress, attitudes, and personality traits. We have also provided the first specific compendium of analytic procedures appropriate for making the most effective use of the moderator-mediator distinction both separately and in terms of a broader causal system that includes both moderators and mediators. And Individuals with unstable high self-esteem would report especially high tendencies to experience anger and hostility, and that individuals with stable high self-esteem would report particularly low tendencies. And those individual who were having stable and unstable low self-esteem are fall between these two extremes (Kernis et.al., 1989) [6]. Evaluations of self-worth play a fundamental role in the etiology, maintenance, and remission of depressive symptomatology (Kuiper et.al., 1988) [8]. The high self-esteem individuals, instability were related to greater excuse making following success, but not following failure. However, for low self-esteem individuals, instability was related to greater excuse making following failure, but not following success (Kernis et.al., 1992) [7]. Theoretical orientations, vulnerable self-esteem is thought to act as a diathesis for depression after life stress. The age didn't significantly correlate with the stress and depression (Roberts & Monroe, 1992) [12]. The cognitive theory of depression, which proposes that dysfunctional beliefs are vulnerability factors for depression but also that reporting of dysfunctional beliefs depends on current mood state to the normal people (Miranda et.al., 1990) [9]. Some studies have said that without recovery and follow up to the athletes is also a factor to caused stress. The relapse after recovery from unipolar depression is frequent but less likely to occur the longer a person stays well and that relapse is more likely with a history of depressive episodes, recent stress, lack of social support, or persistent neuroendocrine dysregulation after recovery. Demographic variables that have consistently failed to demonstrate an association with relapse include gender, marital status, and socioeconomic status (SES) (Belsher, 1988) [3]. Individual differences may exist in the general tendency to infer negative consequences and negative characteristics about the self, given the occurrence of negative

life events. The two additional cognitive styles also are diatheses that operate in the presence, but not in the absence, of negative life events according to the specific vulnerability hypothesis (Abramson, 1989) [1]. In some athletes there is under recovery as the result of excessively prolonged and/or intense exercise, stressful competition, or other stresses. This leads to progressive fatigue and underperformance. The reaction to this underperformance is often an increase in training rather than rest. There may also be a history of a sudden increase in training, prolonged heavy monotonous training, and very commonly some other physical or psychological stress. Nevertheless, however hard the training, most athletes will recover fully after two weeks of adequate rest. There may also be loss of appetite, weight loss, loss of competitive drive and libido, and increased emotional ability, anxiety, and irritability. The overtraining syndrome affects mainly endurance athletes. It is a condition of chronic fatigue, underperformance, and an increased vulnerability to infection leading to recurrent infections. It is not yet known exactly how the stress of hard training and competition leads to the observed spectrum of symptoms. Psychological, endocrinological, physiological, and immunological factors all play a role in the failure to recover from exercise. Careful monitoring of athletes and their response to training may help to prevent the overtraining syndrome. With a very careful exercise regimen and regeneration strategies, symptoms normally resolve in 6-12 weeks but may continue much longer or recur if athletes return to hard training too soon (Budgett, 1998) [4].

**Methodology**

For the purpose of the study the total of 112 (28 male from each team sports) were selected. The subjects were Inter-University athletes at National level from different team sports i.e. basketball, volleyball, football and hockey. And the age of the subjects were ranged from 17 to 25. For the assessment of the data on the stress vulnerability of selected athletes the questionnaire "Stress Vulnerability Scale" developed by Lyle H. Miller and Alma Dell Smith (1989), Boston University Medical Center and also cited by Werner W.K. Hoeger, "Lifetime Physical Fitness and Wellness". To find out the Stress Vulnerability Level of selected athletes, descriptive statistics was used, and to examine the significance differences of stress vulnerability between selected sports athletes, one way ANOVA was used and the hypothesis was tested at .05 level of significance.

Level of Stress Vulnerability Scale

0 - 10 Point ..... Excellent (Excellent to resistance stress)	11 - 30 Points ..... Good (Very little vulnerability to stress)
31- 50 points ..... Fair (Some vulnerability to stress)	51- 80 Points ..... Poor (Seriously vulnerable to stress)

**Results**

**Table 1:** Descriptive Statistics

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Basketball	28	28.607	8.862	1.67	25.17	32.04	14.00	46.00
Volleyball	28	27.571	7.480	1.41	24.67	30.47	15.00	48.00
Football	28	25.607	5.685	1.07	23.40	27.81	13.00	35.00
Hockey	28	25.321	8.563	1.62	22.00	28.64	10.00	49.00
Total	112	26.777	7.765	.73	25.32	28.23	10.00	49.00

Table 1, reveals that the mean and standard deviation of Stress Vulnerability for selected subjects of team sports i.e., basketball (28.607 ± 8.862), volleyball (27.571 ± 7.480), football (25.607 ± 5.685), hockey (25.321 ± 8.563) respectively.

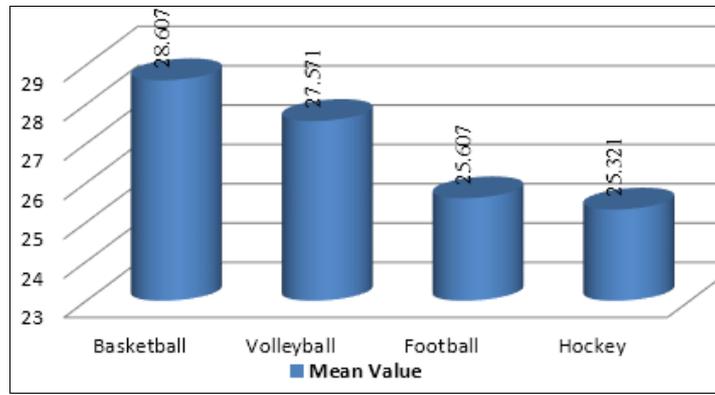


Fig 1: Shows that the mean comparison on stress vulnerability levels among the sports.

To compare the stress vulnerability difference between selected sports, the *One Way Analysis of Variance* was applied and data pertaining to these have been presented in table 2.

Table 2: ANOVA table for the Stress Vulnerability of selected sports

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	209.098	3	69.699	1.161	.328
Within Groups	6484.321	108	60.040		
Total	6693.420	111			

It is evident from table – 2 that the p-value for stress vulnerability of selected subjects is greater than 0.05 and hence the F- value is insignificant at 5% level.

The post hoc mean comparison test is not required to apply because of the selected team sports has no differences in the resistance level of Vulnerability stress.

To assess the equality of variances or homogeneity of variance for a variable i.e., stress vulnerability, calculated by Levene’s statistics for selected groups.

Table 3: Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
1.943	3	108	.127

Table 3 reveals that the P-value of Levene's test is more than critical value (typically 0.05), the obtained differences in sample variances are unlikely to have occurred based on random sampling from a population with equal variances. Thus, it was showed that there is a no difference between the variances in the population for level of stress.

**Discussion of findings**

The physiological and immune consequences of acute bursts of physical exercise parallel the effect of an acute psychological stressor. Similarly, the net effects of endurance training resemble chronic psychological stress, whereas the physiological milieu associated with overtraining resembles that of melancholic depression (Clow, A., & Hucklebridge, F., 2001) [5]. Some studies well said that the prolonged psychological stress often associated with athletic training and competition may make athletes more vulnerable to the negative health effects of training. And of course there are individual differences in self-confidence and self-esteem is also known to relate to the occurrence of injury as well as recovery from injury. The nature of human mind has the ability to think both negative and positive thought. The negative thinking is also a primary source of cognitive stress and depression as comparison to other positive thinkers. It leads the individual to anxiety and at last lead to a risk of major depression (Roberts J. E. & Kassel J. D., 1996) [11]. But

the present study shows that the selected team sports having no difference in the level of vulnerability stress due to training and nature of competition of the sports. As the means scores of the selected are within the range of 11 to 30 given in the norms given in the questionnaire manual that indicate the athletes of the selected sports are very little vulnerability to stress but also good in resistance to stress. This might be because athletes are being develops the tolerance power for coping with stress at different levels of trainings and competitions. So, the training load are therefore must be individualized with their health and fitness and reduced or increased, depending on the athlete’s response. Athletes are also enforced to do with a very careful exercise regimen and regeneration strategies, symptoms normally resolve in 6-12 weeks but may continue much longer or recur if athletes return to hard training too soon. The careful monitoring of athletes and their response to training also help to prevent the overtraining syndrome (Budgett, 1998) [4]. And last but not the least the present study may conclude that the selected players are being trained under by the coach with a careful supervision and controlled condition, so they having little vulnerability to stress but also good in resistance to stress.

**Conclusion**

There is no difference in the stress vulnerability between the selected sports i.e., basketball, volleyball, football and hockey. And however, less level of stress was found in hockey players as comparison of mean score with others team sports players. The author further suggest that there should be other factors which might bring significant difference between the selected team sports and further study can also be done with other sports or increasing subjects or by increasing other psychological variables to make more understanding the real causes of similarities among the selected sports.

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