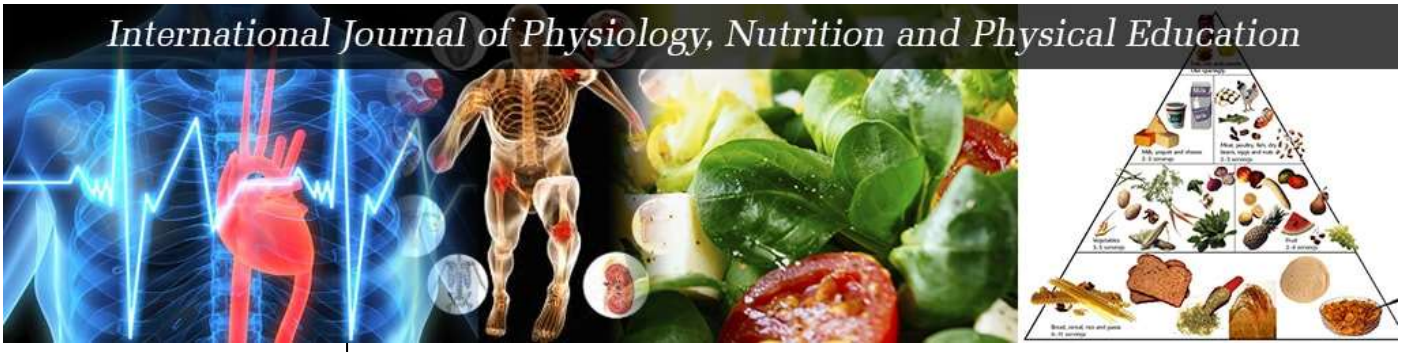

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A study of personality traits among different playing positions of volleyball players

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Abstract
Personality Traits were collected (N=163) from Guru Nanak Dev University, Amritsar (N_1=57), Punjabi University, Patiala (N_2=39), Panjab University, Chandigarh (N_3=37) and I.K. Gujral Punjab Technical University Jalandhar (N_4=30) with reference to playing position of volleyball players (*viz*. Setter, Hitter and Libero). Personality Traits questionnaire constructed by Dr. Yashvir Singh and Dr. Mahesh Bhargava in the year 1999 was utilized for the purpose of this investigation. The Statistical Package for the Social Sciences (SPSS) version 14.0 was used for all analyses. The differences in the mean of each group for selected variable were tested for the significance of difference by One-way Analysis of Variance (ANOVA). Neuroticism: - The test statistic F equals 32.500691, is not in the 95% critical value accepted range: [-∞: 3.0525]. Extraversion: - The test statistic F equals 3.517472, is not in the 95% critical value accepted range: [-∞: 3.0525]. Experience: - The test statistic F equals 1.905846, is in the 95% critical value accepted range: [-∞: 3.0525]. Agreeableness: - The test statistic F equals 2.686304, is in the 95% critical value accepted range: [-∞: 3.0525]. Conscientiousness: - The test statistic F equals 2.831001, is in the 95% critical value accepted range: [-∞: 3.0525].

Keywords: Personality traits, neuroticism, extraversion, openness to experience, agreeableness, conscientiousness

Introduction
Enhancing athletic performance is one of the main goals of sport psychology. In fact, sport can be viewed as a laboratory in which the efficiency of functioning is being investigated under high pressure and accompanying intense emotions [1], creating unique conditions for exploring the role of personality and individual differences in human performance. In the last century, sport and physical activity have earned a great importance in society. With this enhanced awareness, physical, technical and psychological improvements have become priority in sport teams with the intent of making the most of the athlete's potentiality. In this regard, the known sport sciences such as physiology, biochemistry, medicine, biomechanics, sociology and psychology have been improved, researched and applied in competitive sport [2] Personality traits predict a number of performance markers in competitive contexts such as work and academia [3]. Different research on personality and its relationship with individual, interpersonal and social behaviors are equally important regardless the period of time they have been argued [4, 5]. In the 60s and 70s research on athlete's personality increased exponentially, with over 1.000 published studies [6], transforming the vision over the concept and strengthening the understanding of personality. Over time, the relationship between personality and sports performance has been investigated by researchers who have used a wide variety of research methods. A particular approach compared the personality traits of athletes who compete at a high level of performance with those of athletes competing at a lower level [7]. Other studies have highlighted the effect of personality on mental states such as aggression [8] and the mechanisms used to adapt to this state [9, 10, 11].

Study population
Personality Traits were collected (N=163) from Guru Nanak Dev University, Amritsar (N_1=57), Punjabi University, Patiala (N_2=39), Panjab University, Chandigarh (N_3=37) and I.K. Gujral Punjab Technical University Jalandhar (N_4=30) with reference to playing position of inter-college volleyball players.

Table 1: Selection of subject with reference to their playing position

Universities	Setter	Hitter	Libero	Total
Guru Nanak Dev University, Amritsar	14	32	11	57
Punjabi University, Patiala	12	18	9	39
Panjab University, Chandigarh	10	20	7	37
I.K. Gujral Punjab Technical University Jalandhar	8	16	6	30
Sample Size	44	86	33	163

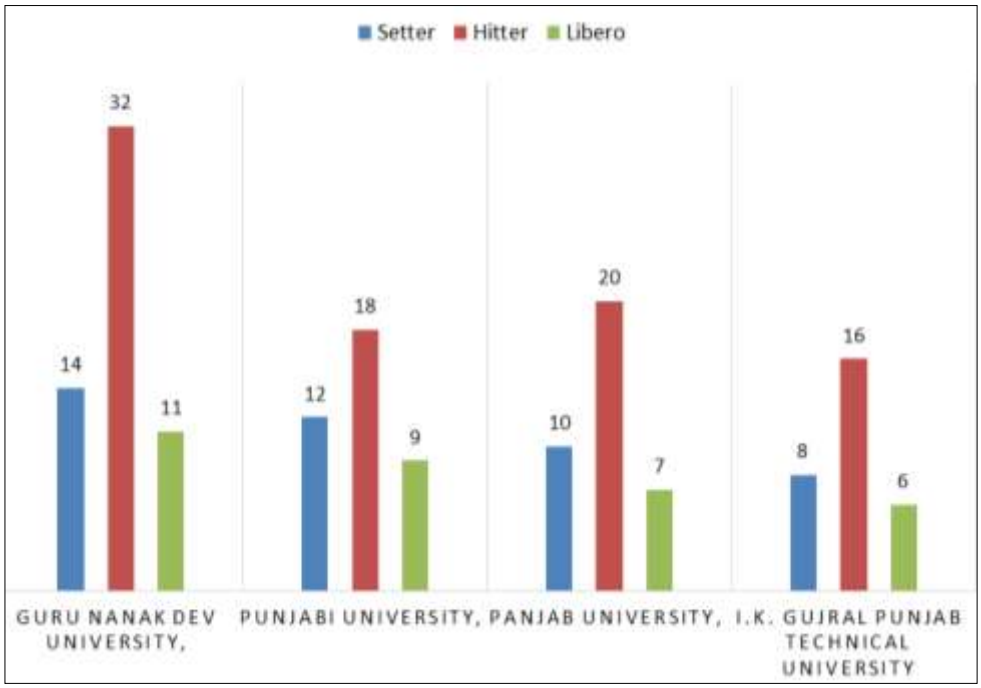

Fig 1: Chart representation of subject with reference to their playing position

Selection of variables

For the purpose of this research, Personality Traits, were measured. As far as data collection tools were concerned, the conduction of the research involved the use of semi-structured questionnaire, which was used as a guide for the researcher.

Personality traits

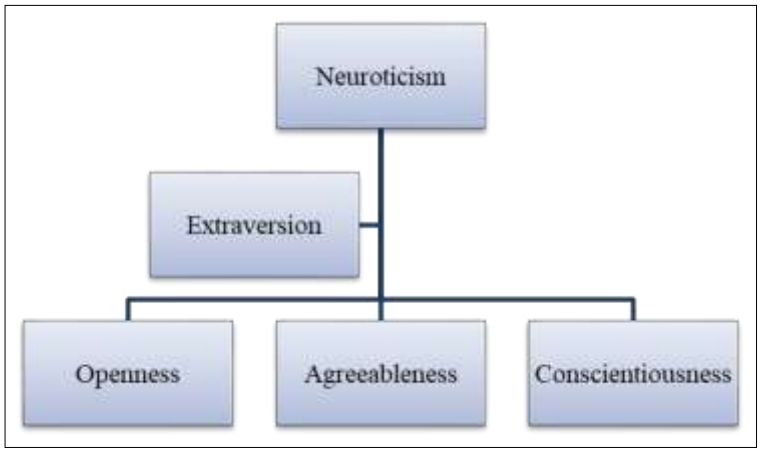

Fig 2: Personality traits

Data collection through questionnaire

The main tool for gaining primary information in present research is questionnaire.

Sr. No.	Questionnaires	Authors	Year
1.	Personality Traits	Dr. Yashvir Singh and Dr. Mahesh Bhargava	1999

Statistical treatment

The Statistical Package for the Social Sciences (SPSS) version 14.0 was used for all analyses. The differences in the mean of each group for selected variable were tested for the significance of difference by One-way Analysis of Variance (ANOVA).

Results

Table 2: ANOVA analysis of neuroticism

Source	DF	Sum of square	Mean square	F statistic	*P*-value
Groups (between groups)	2	2098.477994	1049.238997	32.500691	1.42819
Error (within groups)	160	5165.374457	32.283590		
Total	162	7263.852451	44.838595		

H_0 hypothesis
Since *p*-value<α, H_0 is rejected.
Some of the groups' averages consider to be not equal.
In other words, the difference between the averages of some groups is big enough to be statistically significant.

***P*-value**
p-value equals 1.42819e-12, [p (x ≤ F) = 1.00000]. This means that the chance of type1 error (rejecting a correct H_0) is small: 1.428e-12 (1.4e-10%)
The smaller the p-value the stronger it supports H_1

The statistics
The test statistic F equals 32.500691, is not in the 95% critical value accepted range: [-∞: 3.0525].

Table 3: ANOVA analysis of extraversion

Source	DF	Sum of square	Mean square	F statistic	*P*-value
Groups (between groups)	2	132.244570	66.122285	3.517472	0.0319898
Error (within groups)	160	3007.718727	18.798242		
Total	162	3139.963297	19.382489		

H_0 hypothesis
Since *p*-value<α, H_0 is rejected.
Some of the groups' averages consider to be not equal.
In other words, the difference between the averages of some groups is big enough to be statistically significant.

***P*-value**
p-value equals 0.0319898, [p (x ≤ F) = 0.968010]. This means that the chance of type1 error (rejecting a correct H_0) is small: 0.03199 (3.20%)
The smaller the *p*-value the stronger it support H_1

The statistics
The test statistic F equals 3.517472, is not in the 95% critical value accepted range: [-∞: 3.0525]

Table 4: ANOVA analysis of openness to experience

Source	DF	Sum of square	Mean square	F Statistic	*P*-value
Groups (between groups)	2	73.164334	36.582167	1.905846	0.152057
Error (within groups)	160	3071.154354	19.194715		
Total	162	3144.318689	19.409375		

H_0 hypothesis
Since *p*-value > α, H_0 is accepted.
The averages of all groups considered to be equal.
In other words, the difference between the averages of all groups is not big enough to be statistically significant.

***P*-value**
p-value equals 0.152057, [p (x ≤ F) = 0.847943]. This means that if we would reject H_0, the chance of type1 error (rejecting a correct H_0) would be too high: 0.1521 (15.21%).
The bigger the p-value the stronger it supports H_0

The statistics
The test statistic F equals 1.905846, is in the 95% critical value accepted range: [-∞: 3.0525]

Table 5: ANOVA analysis of agreeableness

Source	DF	Sum of square	Mean square	F statistic	*P*-value
Groups (between groups)	2	138.290025	69.145013	2.686304	0.0712053
Error (within groups)	160	4118.372819	25.739830		
Total	162	4256.662844	26.275697		

H_0 hypothesis
Since *p*-value > α, H_0 is accepted.
The averages of all groups considered to be equal.
In other words, the difference between the averages of all groups is not big enough to be statistically significant.

***P*-value**
p-value equals 0.0712053, [p (x ≤ F) = 0.928795]. This means that if we would reject H_0, the chance of type1 error (rejecting a correct H_0) would be too high: 0.07121 (7.12%)
The bigger the p-value the stronger it supports H_0

The statistics
The test statistic F equals 2.686304, is in the 95% critical value accepted range: [-∞: 3.0525]

Table 6: ANOVA analysis of conscientiousness

Source	DF	Sum of square	Mean square	F statistic	*P*-value
Groups (between groups)	2	106.718105	53.359053	2.831001	0.0619107
Error (within groups)	160	3015.699059	18.848119		
Total	162	3122.417164	19.274180		

H_0 hypothesis

Since *p*-value > α, H_0 is accepted.

The averages of all groups considered to be equal.

In other words, the difference between the averages of all groups is not big enough to be statistically significant.

***P*-value**

p-value equals 0.0619107, [p (x ≤ F) = 0.938089]. This means that if we would reject H_0, the chance of type1 error (rejecting a correct H_0) would be too high: 0.06191 (6.19%).

The bigger the p-value the stronger it supports H_0

The statistics

The test statistic F equals 2.831001, is in the 95% critical value accepted range: [-∞: 3.0525]

Conclusions

Neuroticism

The test statistic F equals 32.500691, is not in the 95% critical value accepted range: [-∞: 3.0525].

Extraversion

The test statistic F equals 3.517472, is not in the 95% critical value accepted range: [-∞: 3.0525].

Openness to experience

The test statistic F equals 1.905846, is in the 95% critical value accepted range: [-∞: 3.0525].

Agreeableness

The test statistic F equals 2.686304, is in the 95% critical value accepted range: [-∞: 3.0525].

Conscientiousness

The test statistic F equals 2.831001, is in the 95% critical value accepted range: [-∞: 3.0525].

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Conflict of interests

The authors declare no conflict of interest.

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