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Effects Of Selected Profile Variables Upon Mood State: A Cross-Cultural Study Among Elite Athletes Of Pakistan

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Abstract

This study was conducted to examine the effects of selected profile variables upon mood state among Pakistani elite athletes. Quantitative research method was adopted in the study. A total of (1463) Likert Type of questionnaires were administered to elite athletes, however; 1430 valid and dully filled questionnaires with (97.74%) were used in the data analysis. The responses were properly tabulated and analyzed with the help computer software Statistical Package for Social Science (SPSS), version 26. A significant level of 0.05 was set to accept or reject the hypotheses. Findings of the study indicated no gender-based difference was found in POMS ($p > 0.05$), however; statistical significant differences were measured on POMS based on formats of sport($P < 0.05$), level of sport's participation ($P < 0.05$), coaching styles of athletes($P < 0.05$), sport experience($P < 0.05$), playing environment($P < 0.05$), racial group($P < 0.05$) and the game they participated in ($p< 0.05$). More research and innovation are required to maintain our health while still supporting the health needs of the people of the country in general and particular among the youth.

Keywords: Mood Profiles, Demographics, Variables, Cross-cultural and Elite Athletes

INTRDUCTION

Happy and successful life needs mood and optimum level of psychological wellbeing. It is important to be able to manage one's emotions because they can distort one's judgement and interfere with rational reasoning. Bad mood shut down the brains then the person enable to listen(Singh, 2013). As a result, it is critical to create an atmosphere that promotes a positive attitude on a daily basis. Likewise, people who have a higher level of psychological well-being are more likely to live healthy and longer lives(Simmons, Knight, & Menard, 2018). They are much more likely to have a higher standard of living (Kubzansky et al., 2018).

The word "Mood" is derived from the Old English 'mod' which stands for the military courage, but can also be referred to an individual's temper, humor, or disposition at a particular time. A mood is an affective condition in psychology (Searight &Montone, 2020). Moods, unlike emotions and feelings, are less specific, less intense, and less likely to be triggered or manifested by a specific stimulus or event. Positive and negative valences (Valence refers to the pleasantness or unpleasantness of an emotional stimulus. Nearly all events and experiences, such as faces, sounds, music, art, pictures, written or spoken language, and many others can be classified along this dimension as more or less positive or negative), are

often used to characterize moods. In other words, people often discuss whether they are in a good or poor mood. According to research, a person's mood may affect how they process odds.

Research in the area of exercise and psychological well-being has become an increasingly important segment of the sport psychology. Research on the reasons for and consequences of sport participation in the perspective of sport, exercise, and mood has focused on objective outcomes, but there has been little work exploring young elite athletes of their sport experiences pertaining to profile of mood sate based on their demographic attributes.

In the literature on sport, exercise, and mood, exercise has been shown to improve mood states such as anxiety, stress, and depression through physiological and biochemical pathways, according to a growing body of research (Mikkelsen, Stojanovska, Polenakovic, Bosevski, &Apostolopoulos, 2017). However, if the exercise is excessive and inappropriate, particularly over a long period of time, all of the other variables listed above can worsen, leading to additional issues such as sleep disturbances and overtraining (Peluso, & Andrade, 2005; Modoio et al., 2011).To gain a fuller understanding of the effect of sport, exercise, and mood states, quantitative research is required. Focusing on elite athletes' experiences can help develop more robust theories of positive youth development, as well as potentially informing future sport policy makers.

The current study aimed to better understand elite athletes, sport experiences in the sport, mode states. Quantitative method was used to gain insight into the sport-based experiences of elite athletes participated in elite level events across various provinces of the homeland country Pakistan. The data were contextualized with a review of recent literature on the sport, exercise, mood states, self-satisfaction and statistical analyses of demographic changes in the variables.

OBJECTIVES

1. To determine the effects of demographic variables on mood profile of elite athletes of Pakistan.

HYPOTHESIS

1. There are significant effects of demographic variables on the mood profile of elite athletes of Pakistan.

ETHOD AND MATERIALS

Research Design

Different research design like descriptive, exploratory, historical are commonly used but, descriptive research has an immense value in solving students, teachers, head of the institutions, curriculum and other teaching and learning processes (Bloomfield, & Fisher, 2019). Keeping in view the set objectives and hypotheses of the study, descriptive research was used.

Population and Sampling

All athletes from different areas of the country who participate or participating at elite level (N=15951) was named as population of the study.A sample of (n=1463) was selected and participated in the survey. For determining a sample size for the present research, a table of Krejcieand Morgan (1970) was used. It is pertinent to mention here that a total of (1463) questionnaires were administered to elite athletes, however; 1430 valid and dully filled questionnaires with (97.74%) were used in the data analysis.

Table 1 The sample Size Determination

Area	Population	Sample
Khyber Pakhtunkhwa	4990	369
Punjab	9892	512
Sindh	322	178
Baluchistan	512	232

Azad Jamu& Kashmir	200	133
Gilgit Baltistan	45	39
Total	15951	1463

Design of the Questionnaire

Literature in the area of research instrumentation describes two kinds of questions namely open-ended and closed-ended. In the present study, the researcher used 5-point Likert Scales.

Profile of Mood State

The profile of mood state was considered as dependent variable which was measured through adapted version of the questionnaire used by (McNair, Lorr, &Doppleman, 1971). Recently, several researchers used the same questionnaire in their respective cultures (Andrade et al., 2016; Brandt, Bevilacqua, & Andrade, 2017; Brandt et al., 2018; Vancini et al., 2019). POMS is a standard validated psychological test formulated by McNair et al. (1971). The questionnaire contains 65 words/statements that describe the feelings people have. The test requires you to indicate for each word or statement how you have been feeling in the past week, including today. Internal consistency for the Profile of Mood States was reported at 0.63 to 0.96 Cronbach alpha rating. For the brief version, POMS-SF, the internal consistency rating was 0.76 to 0.95. The correlation between the sub-scales and the total score in POMS and POMS-SF was calculated as 0.84. In addition, the POMS was correlated with the Functional Assessment of Cancer Therapy scale and the Psychological Well-Being scale, with calculated -0.68 ratings.

The researcher, in the current study, also used the same questionnaire after necessary modifications following the cultural requirements. The profile of mood state of the athletes was determined on different dimensions including tension, depression, anger, vigor, fatigue and confusion. For this purpose, 5-point Likert scale ranging from Not at all=0 to Extremely=4 was used.

Results and Discussion

Table 2 Reliability Statistics

SN	Questions/ Instrument	N of Items	Cronbach's Alpha
1	POMS	58	.799

Cronbach's alpha was used to measure the reliability of the instrument. The acceptable range of Cronbach Alpha is 0.6 however, in present case, the reliability statistics for all the three variables was greater than 0.6 which shows that constructs have good reliability

Table 3 Factor Analysis

KMO and Bartlett's Test for POMS

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.892
Bartlett's Test of Sphericity	Approx. Chi-Square	59020.450
	Df	1653
	Sig.	.000
	Required	Computed
KMO test	= > 0.6	.892
Bartlett's test	= < 0.05	.000

Factor Loadings	= > 0.4	>0.4

The table discloses that KMO value for POMS is .892 which is greater than (0.6). Thus, POMS has appropriate validity about sample adequacy. For correlation matrix about structure detection displays significance (.000) for POMS from results of Bartlett tests.

Table 4 Component matrix for POMS

Items	Score	Items	Score	Items	Score	Items	Score
POMS1	.754	POMS16	.798	POMS31	.532	POMS46	.377
POMS2	.743	POMS17	.517	POMS32	.679	POMS47	.478
POMS3	.812	POMS18	.766	POMS33	.489	POMS48	.353
POMS4	.752	POMS19	.642	POMS34	.543	POMS49	.680
POMS5	.679	POMS20	.758	POMS35	.734	POMS50	.475
POMS6	.701	POMS21	.900	POMS36	.691	POMS51	.467
POMS7	.763	POMS22	.744	POMS37	.812	POMS52	.888
POMS8	.637	POMS23	.644	POMS38	.931	POMS53	.531
POMS9	.576	POMS24	.701	POMS39	.732	POMS54	.664
POMS10	.665	POMS25	.698	POMS40	.744	POMS55	.589
POMS11	.598	POMS26	.850	POMS41	.831	POMS56	.655
POMS12	.498	POMS27	.815	POMS42	.666	POMS57	.885
POMS13	.866	POMS28	.630	POMS43	.654	POMS58	.433
POMS14	.903	POMS29	.698	POMS44	.751		
POMS15	.752	POMS30	.590	POMS45	.477		

Factor loading requisite value of items in instrument is (.4) and in current case, for POMS, the item factor loadings are above (.4) which means that the items have suitable link between each other. Thus, the results give adequate confirmation about instrument validity.

Participants' Attributes

Table 5 Demographics information of the participants (n=1430)

Demographic	Category	Frequency	Percent
Gender	Male	875	61.2%
	Female	555	38.8%
Formats of Sport	Individual	654	45.7%
	Team	776	54.3%
Sports Experience	10 years and below	676	47.3%
	11 to 15 years	398	27.8%
	16 years and above	356	24.9%
Level of Sports Participation	National	860	60.1%
	International	570	39.9%

	Pakhtoon	367	25.7%
	Punjabi	499	34.9%
	Sindhi	175	12.2%
Ethnic Group	Baloochi	230	16.1%
	Kashmiri	130	9.1%
	Baltistani	29	2.0%
	Supportive Coach	885	61.9%
Coaching Style	Controlling coach	545	38.1%
	Hot Environment	867	60.6%
Playing Environment	Cold Environment	562	39.3%
	Table Tennis	70	4.9%
	Badminton	86	6.0%
	Athletics	276	19.3%
	Taekwondo	222	15.5%
Playing Games	Cricket	180	12.6%
	Hockey	180	12.6%
	Volleyball	220	15.4%
	Football	196	13.7%

Table 5 shows that there were total 8 different demographic variables were entertained in the study in hand, which were gender (Male= 61.2%, Female= 38.8%), formats of sports (Individual= 45.7%, Team= 54.3%), sports experience (10 years and below= 47.3%, 1 to 15 years= 27.8%, 16 years and above= 24.9%), level of sports participation (National= 60.1%, International= 39.9%), ethnic group (Pakhtoon= 25.7%, Punjabi= 34.9%, Sindhi= 12.2%, Baloochi= 16.1%, Kashmiri= 9.1%, Baltistani= 2.0%), coaching style (Supportive coach= 61.9%, Controlling coach= 38.1%), playing environment (Hot environment= 60.6%, Cold Environment= 39.3%), and playing games (Table tennis= 4.9%, Badminton= 6%, Athletics= 19.3%, Taekwando= 15.5%, Cricket= 12.6%, Hockey= 12.6%, Volleyball= 15.4%, Football= 13.7%). The total sample elite athletes were 1430.

TEST OF SIGNIFICANCE

H_1: The groups of male and female elite athletes are reporting insignificant statistical differences on POMS (Total Mood Disturbance).

Table 6 Independent sample t-test comparing the mean score of Male and female in Profile of Mood States

Testing Variables	Gender	N	Mean	Std. Deviation	T	Sig.
Tension	Male	875	2.2230	.41882	1.601	.110
	Female	555	2.1860	.43676		
Depression	Male	875	2.4729	.35368	2.941	.003
	Female	555	2.4150	.37679		
Anger	Male	875	3.2215	1.02077	2.384	.017
	Female	555	3.0890	1.02879		
Vigor	Male	875	3.9040	.29844	10.199	.000
	Female	555	3.6320	.69437		
Fatigue	Male	875	3.1135	.88904	.666	.506

	Female	555	3.0798	.99636		
Confusion	Male	875	3.1598	1.00419	2.012	.044
	Female	555	3.0453	1.11565		
Total Mood Disturbance	Male	875	10.2867	2.50539	.738	.461
	Female	555	10.1832	2.70951		

The elite athletes were classified into two strata like males and females. According to the data analysis, males reported higher mean scores for different dimensions on profile of Mood Scale (POMS) as compared with female athletes. The results indicated that participants have shown significant results on two (02) dimensions namely tension and fatigue were found insignificant based on the p-values .110 and .506 respectively, which is greater than the significant level of 0.05. Contrary to the above results, statistical inferences produced significant results on various dimensions like depression, anger, vigor and confusion based on p-values .003, .017, .000 and .044 respectively which is lesser then the significant value of 0.05. However, the overall result for Total Mood Disturbance is found .461 which is greater than the standard value of 0.05. Therefore, H_1 is hereby accepted.

H_2: The Individual sport-participants group is scoring lower on POMS as compared with a team sport-participants group.

Table 7 Individual vs team sports (POMS)

Testing Variables	Individual Vs Team	N	Mean	Std. Deviation	t	Sig.
Tension	Individual	654	2.1777	.42105	-2.523	.012
	Team	776	2.2347	.42885		
Depression	Individual	654	2.4333	.37908	-1.634	.103
	Team	776	2.4649	.34998		
Anger	Individual	654	3.0612	1.11736	-3.704	.000
	Team	776	3.2619	.93218		
Vigor	Individual	654	3.9278	.23149	9.070	.000
	Team	776	3.6894	.63747		
Fatigue	Individual	654	3.0564	1.01374	-1.642	.101
	Team	776	3.1375	.85591		
Confusion	Individual	654	3.0264	1.11588	-2.949	.003
	Team	776	3.1904	.98551		
Total Mood Disturbance	Individual	654	9.8272	2.87088	-5.690	.000
	Team	776	10.5999	2.26132		

According to the descriptive statistics the athletes participated in team sports are reporting higher mean scores in all dimensions of profile of mood states except vigor as compared with athletes participated in team sports. To test the generalizability of these differences in the whole population, an independent sample t-test was used and the results are presented in Table 7. The last column in the above table presents the P-values of all the dimensions anger, vigor, and confusion are lesser then the critical limit of 0.05 (.012, .000, .000 & .003 < 0.05). In the same table, the P-values for depression and fatigue were found higher than the critical value (.103 & .101 > 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_2 is hereby accepted.

H_3: The national level sport-participants group is scoring lower on POMS as compared with international level sport-participants group.

Table 8 Level of Sports wise comparison (Profile of Mood state)

Testing Variables	Level of Sports Participation	N	Mean	T	Sig.
Tension	National	860	2.2080	-.067	.947
	International	570	2.2096		
Depression	National	860	2.4647	1.826	.068
	International	570	2.4289		
Anger	National	860	3.1388	-1.420	.156
	International	570	3.2174		
Vigor	National	860	3.9195	11.549	.000
	International	570	3.6158		
Fatigue	National	860	3.1211	1.032	.302
	International	570	3.0692		
Confusion	National	860	3.1164	.047	.963
	International	570	3.1138		
Total Mood Disturbance	National	860	10.1296	-2.103	.036
	International	570	10.4230		

According to the descriptive statistics the athletes participated in international level sports are reporting higher mean scores in (Tension and Anger) dimensions of profile of mood states except (depression, vigor, fatigue, and confusion) as compared with athletes participated in national sports. To test the generalizability of these differences in the whole population, an independent sample t-test was used and the results are presented in Table 8. The last column in the above table presents the P-values of all the dimensions vigor and total mood disturbance are lesser then the critical limit of 0.05 (.000 & .036 < 0.05). In the same table, the P-values for tension, depression, anger, fatigue and confusion) were found higher then the critical value (.947, .068, .156, .302, & .963 > 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_3 is hereby accepted.

H_4: The elite athletes having supportive coach is scoring lower on POMS as compared with elite athletes having controlling coach.

Table 9 Coaching Style wise differences in POMS

Testing Variables	Coaching Style	N	Mean	Std. Deviation	t	Sig.
Tension	Supportive Coach	885	2.2000	.42720	-.975	.330
	Controlling coach	545	2.2226	.42433		
Depression	Supportive Coach	885	2.4564	.36358	.792	.429
	Controlling coach	545	2.4407	.36425		
Anger	Supportive Coach	885	3.1250	1.06498	-2.120	.034
	Controlling coach	545	3.2433	.95455		
Vigor	Supportive Coach	885	3.9206	.27399	12.150	.000
	Controlling coach	545	3.6000	.70326		
Fatigue	Supportive Coach	885	3.1364	.93863	1.863	.063
	Controlling coach	545	3.0419	.91889		
Confusion	Supportive Coach	885	3.1240	1.04212	.394	.694
	Controlling coach	545	3.1014	1.06338		
Total Mood Disturbance	Supportive Coach	885	10.1212	2.71259	-2.339	.019
	Controlling coach	545	10.4500	2.35452		

According to the descriptive statistics the elite athletes having controlling coach are reporting higher mean scores in (Tension and Anger) dimensions of profile of mood states except (depression, vigor, fatigue, and confusion) as compared with elite athletes supportive coach. To test the generalizability of these differences in the whole population, an independent sample t-test was used and the results are presented in Table 9. The last column in the above table presents the P-values of all the dimensions anger, vigor and total mood disturbance are lesser then the critical limit of 0.05 (.034, .000 & .019 < 0.05). In the same table, the P-values for tension, depression, fatigue and confusion) were found higher than the critical value (.330, .429, .063, & .694 > 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_4 is hereby accepted.

H_5: The elite athletes having hot environment is scoring lower on POMS as compared with elite athletes having cold environment.

Table 10 Playing Environment wise differences (POMS)

Testing Variables	Playing Environment	N	Mean	Std. Deviation	t	Sig.
Tension	Hot Environment	867	2.1865	.42421	-2.445	.015
	Cold Environment	563	2.2427	.42712		
Depression	Hot Environment	867	2.4340	.37272	-2.125	.034
	Cold Environment	563	2.4758	.34840		
Anger	Hot Environment	867	3.0804	1.10413	-4.125	.000
	Cold Environment	563	3.3082	.87427		
Vigor	Hot Environment	867	3.9250	.25522	12.270	.000
	Cold Environment	563	3.6035	.70380		
Fatigue	Hot Environment	867	3.0685	.98126	-1.605	.109
	Cold Environment	563	3.1495	.84899		
Confusion	Hot Environment	867	3.0456	1.08942	-3.127	.002
	Cold Environment	563	3.2228	.97735		
Total Mood Disturbance	Hot Environment	867	9.8901	2.78795	-6.563	.000
	Cold Environment	563	10.7955	2.12840		

According to the descriptive statistics the elite athletes having cold environment are reporting higher mean scores in (Tension, depression, anger, fatigue, confusion and total mood disturbance) dimensions of profile of mood states except (vigor) as compared with elite athletes having hot environment. To test the generalizability of these differences in the whole population, an independent sample t-test was used and the results are presented in Table 10. The last column in the above table presents the P-values of all the dimensions tension, depression, anger, vigor, confusion, and total mood disturbance are lesser then the critical limit of 0.05 (.015, .034, .000, .000, .002 & .000 < 0.05). In the same table, the P-values for fatigue was found higher than the critical value (.109 > 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_5 is hereby accepted.

H_6: The elite athletes having 10 years and below experience scoring lower on POMS as compared with elite athletes having 11 to 15 years and 16 years and above experience.

Table 11 Sport experience wise differences in POMS

POMS	Experience	N	Mean	Std. Deviation	F	Sig.
Tension	10 years and below	676	2.1956	.42944	2.008	.135

	11 to 15 years	398	2.1957	.42748		
	16 years and above	356	2.2478	.41687		
	Total	1430	2.2086	.42610		
Depression	10 years and below	676	2.4394	.37481	.714	.490
	11 to 15 years	398	2.4667	.34852		
	16 years and above	356	2.4532	.35951		
	Total	1430	2.4504	.36379		
Anger	10 years and below	676	3.0642	1.11432	7.730	.000
	11 to 15 years	398	3.2196	.94998		
	16 years and above	356	3.3158	.90455		
	Total	1430	3.1701	1.02557		
Vigor	10 years and below	676	3.9534	.16174	82.812	.000
	11 to 15 years	398	3.7550	.53334		
	16 years and above	356	3.5527	.75248		
	Total	1430	3.7984	.50890		
Fatigue	10 years and below	676	3.1114	.98137	.135	.873
	11 to 15 years	398	3.0808	.87916		
	16 years and above	356	3.1015	.89440		
	Total	1430	3.1004	.93196		
Confusion	10 years and below	676	3.0928	1.08877	3.386	.034
	11 to 15 years	398	3.0459	.98685		
	16 years and above	356	3.2360	1.03613		
	Total	1430	3.1154	1.04996		
Total Mood Disturbance	10 years and below	676	9.9500	2.82366	12.855	.000
	11 to 15 years	398	10.2537	2.42536		
	16 years and above	356	10.8016	2.16933		
	Total	1430	10.2465	2.58608		

According to the descriptive statistics the elite athletes having experience 16 years and above score greater mean score in tension and total mood disturbance than elite athletes having 10 years and below and 11 to 15 years of sports experience. Similarly, the elite athletes having sport experience 11 to 15 years of experience score greater mean score in depression and anger as well as the elite athletes having sports experience 10 years and below score greater mean score in vigor and fatigue variable of profile of mood states.To test the generalizability of these differences in the whole population, a single factor ANOVA was used and the results are presented in Table 11. The last column in the above table presents the P-values of all the dimensions anger, vigor, confusion, and total mood disturbance are lesser then the critical limit of 0.05 (.000, .000, .034, & .000 < 0.05). In the same table, the P-values for tension, depression and fatigue was found higher than the critical value (.135, .490, & .873> 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_6 is hereby accepted.

Table 11.1 Multiple Comparisons **(**Tukey HSD)

Dependent Variable	(I) Sports Experience	(J) Sports Experience	Mean Difference (I-J)	Std. Error	Sig.
Tension	10 years and below	11 to 15 years	-.00011	.02690	1.000
		16 years and above	-.05222	.02788	.147
	11 to 15 years	10 years and below	.00011	.02690	1.000
		16 years and above	-.05211	.03106	.214

	16 years and above	10 years and below	.05222	.02788	.147
		11 to 15 years	.05211	.03106	.214
	10 years and below	11 to 15 years	-.02722	.02299	.463
		16 years and above	-.01374	.02383	.833
Depression	11 to 15 years	10 years and below	.02722	.02299	.463
		16 years and above	.01348	.02654	.867
	16 years and above	10 years and below	.01374	.02383	.833
		11 to 15 years	-.01348	.02654	.867
	10 years and below	11 to 15 years	-.15541*	.06449	.042
		16 years and above	-.25155*	.06685	.001
Anger	11 to 15 years	10 years and below	.15541*	.06449	.042
		16 years and above	-.09614	.07446	.400
	16 years and above	10 years and below	.25155*	.06685	.001
		11 to 15 years	.09614	.07446	.400
	10 years and below	11 to 15 years	.19838*	.03046	.000
		16 years and above	.40073*	.03157	.000
Vigor	11 to 15 years	10 years and below	-.19838*	.03046	.000
		16 years and above	.20236*	.03517	.000
	16 years and above	10 years and below	-.40073*	.03157	.000
		11 to 15 years	-.20236*	.03517	.000
	10 years and below	11 to 15 years	.03061	.05892	.862
		16 years and above	.00984	.06107	.986
Fatigue	11 to 15 years	10 years and below	-.03061	.05892	.862
		16 years and above	-.02076	.06803	.950
	16 years and above	10 years and below	-.00984	.06107	.986
		11 to 15 years	.02076	.06803	.950
	10 years and below	11 to 15 years	.04683	.06623	.759
		16 years and above	-.14318	.06864	.093
Confusion	11 to 15 years	10 years and below	-.04683	.06623	.759
		16 years and above	-.19001*	.07647	.035
	16 years and above	10 years and below	.14318	.06864	.093
		11 to 15 years	.19001*	.07647	.035
	10 years and below	11 to 15 years	-.30368	.16205	.147
		16 years and above	-.85158*	.16796	.000
Total Mood Disturbance	11 to 15 years	10 years and below	.30368	.16205	.147
		16 years and above	-.54790*	.18711	.010
	16 years and above	10 years and below	.85158*	.16796	.000
		11 to 15 years	.54790*	.18711	.010

Table 11.1 showing the sports experience wise Multiple comparisons in Profile of Mood State of elite athletes of Pakistan. The respondents were significantly different in Tension, depression, anger, vigor, fatigue, confusion and total mood disturbance. 11 to 15 years, 16 years and above and 10 years and below were the sports experience wise groups of elite athletes of Pakistan.

H7: The Pakhtoon Elite athletes scoring lower on POMS as compared with Punjabi, Sindhi, Baloochi, Kashmiri, and Baltistani elite athletes of Pakistan.

Table 12 Ethnic group wise differences (Profile of Mood State)

Testing Variables	Ethnicity	N	Mean	Std. Deviation	F	Sig.
	Pakhtoon	367	2.1759	.42967	1.336	.246
	Punjabi	499	2.2124	.42489		
	Sindhi	175	2.1860	.43103		
Tension	Baloochi	230	2.2580	.42587		
	Kashmiri	130	2.2385	.41507		
	Baltistani	29	2.1686	.40892		
	Total	1430	2.2086	.42610		
	Pakhtoon	367	2.4252	.37594	1.891	.093
	Punjabi	499	2.4684	.35964		
	Sindhi	175	2.4789	.34877		
Depression	Baloochi	230	2.4699	.33570		
	Kashmiri	130	2.4046	.36761		
	Baltistani	29	2.3402	.51156		
	Total	1430	2.4504	.36379		
	Pakhtoon	367	3.0550	1.15856	2.665	.021
	Punjabi	499	3.1328	1.02783		
	Sindhi	175	3.2314	.89482		
Anger	Baloochi	230	3.3373	.89255		
	Kashmiri	130	3.2679	.97354		
	Baltistani	29	3.1351	.99438		
	Total	1430	3.1701	1.02557		
	Pakhtoon	367	3.9704	.13742	64.322	.000
	Punjabi	499	3.8810	.34020		
	Sindhi	175	3.8614	.33596		
Vigor	Baloochi	230	3.6772	.65657		
	Kashmiri	130	3.2981	.83387		
	Baltistani	29	3.0259	1.02283		
	Total	1430	3.7984	.50890		
	Pakhtoon	367	3.0529	.94689	1.751	.120
	Punjabi	499	3.1683	.96401		
	Sindhi	175	3.0882	.85696		
Fatigue	Baloochi	230	3.0621	.89072		
	Kashmiri	130	3.1396	.89089		
	Baltistani	29	2.7340	1.04820		
	Total	1430	3.1004	.93196		
	Pakhtoon	367	3.0000	1.11310	3.754	.002
	Punjabi	499	3.1935	1.01780		
	Sindhi	175	2.9763	.94576		
Confusion	Baloochi	230	3.2988	1.03848		
	Kashmiri	130	3.0110	1.03699		
	Baltistani	29	3.0837	1.25619		
	Total	1430	3.1154	1.04996		
	Pakhtoon	367	9.7387	2.62457	5.883	.000
Total Mood	Punjabi	499	10.2944	2.87418		
Disturbance	Sindhi	175	10.0994	2.23250		
	Baloochi	230	10.7488	2.19215		

Kashmiri	130	10.7635	2.12510
Baltistani	29	10.4357	2.52234
Total	1430	10.2465	2.58608

According to the descriptive statistics the Baloochi elite athletes score greater mean score in tension, anger, and confusion than elite athletes having ethnicity Pakhtoon, Punjabi, Sindhi, Kashmiri and Baltistani. Similarly, the Sindhi elite athletes score greater mean score in depression, Pakhtoon elite athletes score greater mean score in Vigor and Kashmiri score greater in total mood disturbance.To test the generalizability of these differences in the whole population, a single factor ANOVA was used and the results are presented in Table 12. The last column in the above table presents the P-values of all the dimensions' anger, vigor, confusion, and total mood disturbance are lesser then the critical limit of 0.05 (.021, .000, .002, & .000 < 0.05). In the same table, the P-values for tension, depression and fatigue was found higher than the critical value (2465, .093, & .120 > 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_7 is hereby accepted.

12.1 Multiple comparisons (Ethnic group wise differences in Profile of Mood State)

Dependent Variable	(I) Ethnic Group	(J) Ethnic Group	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval Lower Bound	Upper Bound
Anger	Pakhtoon	Punjabi	-.07782	.07032	.879	-.2785	.1228
		Sindhi	-.17648	.09394	.416	-.4445	.0916
		Baloochi	-.28237*	.08600	.013	-.5278	-.0370
		Kashmiri	-.21300	.10437	.320	-.5108	.0848
		Baltistani	-.08011	.19725	.999	-.6430	.4828
	Punjabi	Pakhtoon	.07782	.07032	.879	-.1228	.2785
		Sindhi	-.09866	.08984	.882	-.3550	.1577
		Baloochi	-.20455	.08150	.122	-.4371	.0280
		Kashmiri	-.13518	.10069	.761	-.4225	.1522
		Baltistani	-.00229	.19533	1.000	-.5597	.5551
	Sindhi	Pakhtoon	.17648	.09394	.416	-.0916	.4445
		Punjabi	.09866	.08984	.882	-.1577	.3550
		Baloochi	-.10589	.10258	.907	-.3986	.1868
		Kashmiri	-.03652	.11840	1.000	-.3744	.3014
		Baltistani	.09637	.20502	.997	-.4887	.6814
	Baloochi	Pakhtoon	.28237*	.08600	.013	.0370	.5278
		Punjabi	.20455	.08150	.122	-.0280	.4371
		Sindhi	.10589	.10258	.907	-.1868	.3986
		Kashmiri	.06937	.11221	.990	-.2508	.3896
		Baltistani	.20226	.20151	.917	-.3728	.7773
	Kashmiri	Pakhtoon	.21300	.10437	.320	-.0848	.5108
		Punjabi	.13518	.10069	.761	-.1522	.4225
		Sindhi	.03652	.11840	1.000	-.3014	.3744
		Baloochi	-.06937	.11221	.990	-.3896	.2508
		Baltistani	.13289	.21001	.989	-.4664	.7322
	Baltistani	Pakhtoon	.08011	.19725	.999	-.4828	.6430
		Punjabi	.00229	.19533	1.000	-.5551	.5597
		Sindhi	-.09637	.20502	.997	-.6814	.4887

		Baloochi	-.20226	.20151	.917	-.7773	.3728
		Kashmiri	-.13289	.21001	.989	-.7322	.4664
		Punjabi	.08936	.03166	.055	-.0010	.1797
		Sindhi	.10894	.04230	.104	-.0118	.2296
	Pakhtoon	Baloochi	.29319*	.03872	.000	.1827	.4037
		Kashmiri	.67229*	.04699	.000	.5382	.8064
		Baltistani	.94451*	.08882	.000	.6911	1.1980
		Pakhtoon	-.08936	.03166	.055	-.1797	.0010
		Sindhi	.01958	.04045	.997	-.0958	.1350
	Punjabi	Baloochi	.20384*	.03670	.000	.0991	.3086
		Kashmiri	.58294*	.04534	.000	.4536	.7123
		Baltistani	.85515*	.08795	.000	.6042	1.1061
		Pakhtoon	-.10894	.04230	.104	-.2296	.0118
		Punjabi	-.01958	.04045	.997	-.1350	.0958
	Sindhi	Baloochi	.18425*	.04619	.001	.0525	.3161
		Kashmiri	.56335*	.05331	.000	.4112	.7155
		Baltistani	.83557*	.09232	.000	.5721	1.0990
Vigour		Pakhtoon	-.29319*	.03872	.000	-.4037	-.1827
		Punjabi	-.20384*	.03670	.000	-.3086	-.0991
	Baloochi	Sindhi	-.18425*	.04619	.001	-.3161	-.0525
		Kashmiri	.37910*	.05052	.000	.2349	.5233
		Baltistani	.65131*	.09073	.000	.3924	.9102
		Pakhtoon	-.67229*	.04699	.000	-.8064	-.5382
		Punjabi	-.58294*	.04534	.000	-.7123	-.4536
	Kashmiri	Sindhi	-.56335*	.05331	.000	-.7155	-.4112
		Baloochi	-.37910*	.05052	.000	-.5233	-.2349
		Baltistani	.27221*	.09456	.047	.0024	.5420
		Pakhtoon	-.94451*	.08882	.000	-1.1980	-.6911
		Punjabi	-.85515*	.08795	.000	-1.1061	-.6042
	Baltistani	Sindhi	-.83557*	.09232	.000	-1.0990	-.5721
		Baloochi	-.65131*	.09073	.000	-.9102	-.3924
		Kashmiri	-.27221*	.09456	.047	-.5420	-.0024
		Punjabi	-.19353	.07186	.077	-.3986	.0115
		Sindhi	.02367	.09599	1.000	-.2503	.2976
	Pakhtoon	Baloochi	-.29876*	.08788	.009	-.5495	-.0480
		Kashmiri	-.01099	.10665	1.000	-.3153	.2933
		Baltistani	-.08374	.20156	.998	-.6589	.4914
		Pakhtoon	.19353	.07186	.077	-.0115	.3986
		Sindhi	.21720	.09180	.169	-.0448	.4792
	Punjabi	Baloochi	-.10523	.08328	.805	-.3429	.1324
Confusion		Kashmiri	.18254	.10289	.483	-.1111	.4762
		Baltistani	.10979	.19960	.994	-.4598	.6794
		Pakhtoon	-.02367	.09599	1.000	-.2976	.2503
		Punjabi	-.21720	.09180	.169	-.4792	.0448
	Sindhi	Baloochi	-.32243*	.10482	.026	-.6215	-.0233
		Kashmiri	-.03466	.12099	1.000	-.3799	.3106
		Baltistani	-.10742	.20950	.996	-.7052	.4904
	Baloochi	Pakhtoon	.29876*	.08788	.009	.0480	.5495
		Punjabi	.10523	.08328	.805	-.1324	.3429

		Sindhi	.32243*	.10482	.026	.0233	.6215
		Kashmiri	.28777	.11466	.122	-.0394	.6150
		Baltistani	.21501	.20591	.903	-.3726	.8026
		Pakhtoon	.01099	.10665	1.000	-.2933	.3153
		Punjabi	-.18254	.10289	.483	-.4762	.1111
	Kashmiri	Sindhi	.03466	.12099	1.000	-.3106	.3799
		Baloochi	-.28777	.11466	.122	-.6150	.0394
		Baltistani	-.07275	.21459	.999	-.6851	.5396
		Pakhtoon	.08374	.20156	.998	-.4914	.6589
		Punjabi	-.10979	.19960	.994	-.6794	.4598
	Baltistani	Sindhi	.10742	.20950	.996	-.4904	.7052
		Baloochi	-.21501	.20591	.903	-.8026	.3726
		Kashmiri	.07275	.21459	.999	-.5396	.6851
		Punjabi	-.55578*	.17634	.021	-1.0590	-.0526
		Sindhi	-.36071	.23557	.644	-1.0329	.3115
	Pakhtoon	Baloochi	-1.01017*	.21565	.000	-1.6256	-.3948
		Kashmiri	-1.02483*	.26172	.001	-1.7717	-.2780
		Baltistani	-.69707	.49463	.721	-2.1085	.7144
		Pakhtoon	.55578*	.17634	.021	.0526	1.0590
		Sindhi	.19507	.22528	.955	-.4478	.8379
	Punjabi	Baloochi	-.45439	.20437	.228	-1.0376	.1288
		Kashmiri	-.46905	.25250	.429	-1.1896	.2515
		Baltistani	-.14129	.48981	1.000	-1.5390	1.2564
		Pakhtoon	.36071	.23557	.644	-.3115	1.0329
		Punjabi	-.19507	.22528	.955	-.8379	.4478
	Sindhi	Baloochi	-.64946	.25722	.118	-1.3835	.0845
		Kashmiri	-.66412	.29691	.222	-1.5114	.1831
Total Mood		Baltistani	-.33636	.51412	.987	-1.8034	1.1307
Disturbance		Pakhtoon	1.01017*	.21565	.000	.3948	1.6256
		Punjabi	.45439	.20437	.228	-.1288	1.0376
	Baloochi	Sindhi	.64946	.25722	.118	-.0845	1.3835
		Kashmiri	-.01466	.28137	1.000	-.8176	.7883
		Baltistani	.31310	.50530	.990	-1.1288	1.7550
		Pakhtoon	1.02483*	.26172	.001	.2780	1.7717
		Punjabi	.46905	.25250	.429	-.2515	1.1896
	Kashmiri	Sindhi	.66412	.29691	.222	-.1831	1.5114
		Baloochi	.01466	.28137	1.000	-.7883	.8176
		Baltistani	.32776	.52661	.989	-1.1750	1.8305
		Pakhtoon	.69707	.49463	.721	-.7144	2.1085
		Punjabi	.14129	.48981	1.000	-1.2564	1.5390
	Baltistani	Sindhi	.33636	.51412	.987	-1.1307	1.8034
		Baloochi	-.31310	.50530	.990	-1.7550	1.1288
		Kashmiri	-.32776	.52661	.989	-1.8305	1.1750

*. The mean difference is significant at the 0.05 level.

Table 12.1 showing the Ethnic group wise Multiple comparisons in Profile of Mood State of elite athletes of Pakistan. The respondents were significantly different in anger, vigor, confusion and total mood disturbance. Punjabi, Sindhi, Baloochi, Kashmiri,

Baltistani, Pakhtoon, and Sindhi were the ethnic groups of elite athletes of Pakistan.

H_8: The Table Tennis elite athletes scoring lower on POMS as compared with Badminton, Athletics, Taekwondo, Cricket, Hockey, Volleyball, and Football elite athletes of Pakistan.

Table 13 Playing games wise differences in POMS

Testing Variables	Playing games	N	Mean	Std. Deviation	F	Sig.
	Table Tennis	70	2.1825	.43551	1.618	.126
	Badminton	86	2.1331	.42364		
	Athletics	276	2.2065	.40797		
	Taekwondo	222	2.1577	.43157		
Tension	Cricket	180	2.2006	.43915		
	Hockey	180	2.2346	.41373		
	Volleyball	220	2.2646	.42525		
	Football	196	2.2324	.43772		
	Total	1430	2.2086	.42610		
	Table Tennis	70	2.4238	.39710	1.253	.270
	Badminton	86	2.4264	.40523		
	Athletics	276	2.4428	.37647		
	Taekwondo	222	2.4273	.36832		
Depression	Cricket	180	2.4456	.34266		
	Hockey	180	2.4985	.31628		
	Volleyball	220	2.4906	.37644		
	Football	196	2.4228	.35232		
	Total	1430	2.4504	.36379		
	Table Tennis	70	3.0607	1.22128	2.260	.027
	Badminton	86	3.1114	1.19542		
	Athletics	276	3.0127	1.14185		
	Taekwondo	222	3.1021	1.02257		
Anger	Cricket	180	3.2019	.92616		
	Hockey	180	3.3042	.93369		
	Volleyball	220	3.2697	.95649		
	Football	196	3.2696	.91286		
	Total	1430	3.1701	1.02557		
	Table Tennis	70	4.0000	.00000	22.521	.000
	Badminton	86	3.9404	.18464		
	Athletics	276	3.9253	.19399		
	Taekwondo	222	3.9032	.30994		
Vigour	Cricket	180	3.5111	.75003		
	Hockey	180	3.7611	.58456		
	Volleyball	220	3.5989	.74973		
	Football	196	3.8890	.26517		
	Total	1430	3.7984	.50890		
	Table Tennis	70	2.8939	1.01968	1.842	.076
Fatigue	Badminton	86	3.2309	.89178		
	Athletics	276	3.1206	1.04901		

	Taekwondo	222	2.9601	1.00100		
	Cricket	180	3.1071	.82362		
	Hockey	180	3.2063	.76660		
	Volleyball	220	3.1273	.91699		
	Football	196	3.1137	.89395		
	Total	1430	3.1004	.93196		
	Table Tennis	70	3.0000	1.10924	2.330	.023
	Badminton	86	3.1096	1.03867		
	Athletics	276	3.1035	1.15253		
	Taekwondo	222	2.9067	1.09660		
Confusion	Cricket	180	3.1262	.97070		
	Hockey	180	3.1587	.90312		
	Volleyball	220	3.1805	1.01708		
	Football	196	3.2894	1.03436		
	Total	1430	3.1154	1.04996		
	Table Tennis	70	9.5609	2.64726	5.307	.000
	Badminton	86	10.0710	2.39718		
	Athletics	276	9.9608	3.25738		
	Taekwondo	222	9.6507	2.57922		
Total Mood Disturbance	Cricket	180	10.5702	2.24920		
	Hockey	180	10.6412	2.24529		
	Volleyball	220	10.7339	2.34790		
	Football	196	10.4388	2.19360		
	Total	1430	10.2465	2.58608		

According to the descriptive statistics the elite athletes playing volleyball games score greater mean score in tension and total mood disturbance than elite athletes playing, Table Tennis, Badminton, Athletics, Taekwondo, Cricket and Hockey. Similarly, the Hockey elite athletes score greater mean score in depression and anger, table tennis elite athletes score greater mean score in Vigor and badminton elite athletes score greater mean score in fatigue, Football elite athletes score greater mean score in confusion.To test the generalizability of these differences in the whole population, a single factor ANOVA was used and the results are presented in Table 13. The last column in the above table presents the P-values of all the dimensions' anger, vigor, confusion, and total mood disturbance are lesser then the critical limit of 0.05 (.027, .000, .023, & .000 < 0.05). In the same table, the P-values for tension, depression and fatigue was found higher than the critical value (.126, .270, & .076 > 0.05). However, the P-value for total Mood Disturbance was found lesser then the standard value of 0.05, therefore, the H_8 is hereby accepted.

Table 13.1
Multiple comparison (Playing games wise differences in POMS)

Multiple Comparisons

Tukey HSD Dependent Variable	(I) Playing Games	(J) Playing Games	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tension	Table Tennis	Badminton	.04946	.06849	.996	-.1584	.2574
		Athletics	-.02398	.05694	1.000	-.1968	.1488
		Taekwondo	.02488	.05832	1.000	-.1521	.2019
		Cricket	-.01808	.05993	1.000	-.2000	.1638

	Hockey	-.05203	.05993	.989	-.2339	.1299
	Volleyball	-.08211	.05838	.855	-.2593	.0951
	Football	-.04989	.05924	.991	-.2297	.1299
	Table Tennis	-.04946	.06849	.996	-.2574	.1584
	Athletics	-.07345	.05254	.858	-.2329	.0860
	Taekwondo	-.02458	.05404	1.000	-.1886	.1394
Badminton	Cricket	-.06754	.05577	.929	-.2368	.1017
	Hockey	-.10149	.05577	.607	-.2708	.0678
	Volleyball	-.13157	.05411	.227	-.2958	.0327
	Football	-.09935	.05503	.617	-.2664	.0677
	Table Tennis	.02398	.05694	1.000	-.1488	.1968
	Badminton	.07345	.05254	.858	-.0860	.2329
	Taekwondo	.04886	.03836	.908	-.0676	.1653
Athletics	Cricket	.00590	.04076	1.000	-.1178	.1296
	Hockey	-.02805	.04076	.997	-.1518	.0957
	Volleyball	-.05812	.03845	.801	-.1748	.0586
	Football	-.02590	.03974	.998	-.1465	.0947
	Table Tennis	-.02488	.05832	1.000	-.2019	.1521
	Badminton	.02458	.05404	1.000	-.1394	.1886
	Athletics	-.04886	.03836	.908	-.1653	.0676
Taekwondo	Cricket	-.04296	.04267	.974	-.1725	.0866
	Hockey	-.07691	.04267	.619	-.2064	.0526
	Volleyball	-.10699	.04047	.141	-.2298	.0159
	Football	-.07477	.04170	.625	-.2013	.0518
	Table Tennis	.01808	.05993	1.000	-.1638	.2000
	Badminton	.06754	.05577	.929	-.1017	.2368
	Athletics	-.00590	.04076	1.000	-.1296	.1178
Cricket	Taekwondo	.04296	.04267	.974	-.0866	.1725
	Hockey	-.03395	.04485	.995	-.1701	.1022
	Volleyball	-.06403	.04276	.809	-.1938	.0658
	Football	-.03181	.04392	.996	-.1651	.1015
	Table Tennis	.05203	.05993	.989	-.1299	.2339
	Badminton	.10149	.05577	.607	-.0678	.2708
	Athletics	.02805	.04076	.997	-.0957	.1518
Hockey	Taekwondo	.07691	.04267	.619	-.0526	.2064
	Cricket	.03395	.04485	.995	-.1022	.1701
	Volleyball	-.03008	.04276	.997	-.1599	.0997
	Football	.00214	.04392	1.000	-.1312	.1355
	Table Tennis	.08211	.05838	.855	-.0951	.2593
	Badminton	.13157	.05411	.227	-.0327	.2958
	Athletics	.05812	.03845	.801	-.0586	.1748
Volleyball	Taekwondo	.10699	.04047	.141	-.0159	.2298
	Cricket	.06403	.04276	.809	-.0658	.1938
	Hockey	.03008	.04276	.997	-.0997	.1599
	Football	.03222	.04179	.995	-.0946	.1591
	Table Tennis	.04989	.05924	.991	-.1299	.2297
Football	Badminton	.09935	.05503	.617	-.0677	.2664
	Athletics	.02590	.03974	.998	-.0947	.1465
	Taekwondo	.07477	.04170	.625	-.0518	.2013

		Cricket	.03181	.04392	.996	-.1015	.1651
		Hockey	-.00214	.04392	1.000	-.1355	.1312
		Volleyball	-.03222	.04179	.995	-.1591	.0946
		Badminton	-.00255	.05853	1.000	-.1802	.1751
		Athletics	-.01894	.04865	1.000	-.1666	.1287
		Taekwondo	-.00352	.04984	1.000	-.1548	.1478
	Table Tennis	Cricket	-.02175	.05121	1.000	-.1772	.1337
		Hockey	-.07471	.05121	.829	-.2302	.0807
		Volleyball	-.06680	.04989	.884	-.2182	.0846
		Football	.00102	.05062	1.000	-.1526	.1547
		Table Tennis	.00255	.05853	1.000	-.1751	.1802
		Athletics	-.01640	.04490	1.000	-.1527	.1199
		Taekwondo	-.00097	.04618	1.000	-.1411	.1392
	Badminton	Cricket	-.01920	.04766	1.000	-.1639	.1255
		Hockey	-.07216	.04766	.800	-.2168	.0725
		Volleyball	-.06425	.04624	.862	-.2046	.0761
		Football	.00357	.04702	1.000	-.1392	.1463
		Table Tennis	.01894	.04865	1.000	-.1287	.1666
		Badminton	.01640	.04490	1.000	-.1199	.1527
		Taekwondo	.01543	.03278	1.000	-.0841	.1149
	Athletics	Cricket	-.00280	.03483	1.000	-.1085	.1029
		Hockey	-.05576	.03483	.750	-.1615	.0500
		Volleyball	-.04785	.03286	.830	-.1476	.0519
		Football	.01996	.03396	.999	-.0831	.1230
		Table Tennis	.00352	.04984	1.000	-.1478	.1548
		Badminton	.00097	.04618	1.000	-.1392	.1411
Depression		Athletics	-.01543	.03278	1.000	-.1149	.0841
	Taekwondo	Cricket	-.01823	.03647	1.000	-.1289	.0925
		Hockey	-.07119	.03647	.515	-.1819	.0395
		Volleyball	-.06328	.03459	.600	-.1683	.0417
		Football	.00454	.03563	1.000	-.1036	.1127
		Table Tennis	.02175	.05121	1.000	-.1337	.1772
		Badminton	.01920	.04766	1.000	-.1255	.1639
		Athletics	.00280	.03483	1.000	-.1029	.1085
	Cricket	Taekwondo	.01823	.03647	1.000	-.0925	.1289
		Hockey	-.05296	.03832	.866	-.1693	.0634
		Volleyball	-.04505	.03654	.922	-.1560	.0659
		Football	.02277	.03753	.999	-.0912	.1367
		Table Tennis	.07471	.05121	.829	-.0807	.2302
		Badminton	.07216	.04766	.800	-.0725	.2168
		Athletics	.05576	.03483	.750	-.0500	.1615
	Hockey	Taekwondo	.07119	.03647	.515	-.0395	.1819
		Cricket	.05296	.03832	.866	-.0634	.1693
		Volleyball	.00791	.03654	1.000	-.1030	.1188
		Football	.07573	.03753	.470	-.0382	.1897
		Table Tennis	.06680	.04989	.884	-.0846	.2182
		Badminton	.06425	.04624	.862	-.0761	.2046
	Volleyball	Athletics	.04785	.03286	.830	-.0519	.1476
		Taekwondo	.06328	.03459	.600	-.0417	.1683

		Cricket	.04505	.03654	.922	-.0659	.1560
		Hockey	-.00791	.03654	1.000	-.1188	.1030
		Football	.06782	.03571	.552	-.0406	.1762
		Table Tennis	-.00102	.05062	1.000	-.1547	.1526
		Badminton	-.00357	.04702	1.000	-.1463	.1392
		Athletics	-.01996	.03396	.999	-.1230	.0831
	Football	Taekwondo	-.00454	.03563	1.000	-.1127	.1036
		Cricket	-.02277	.03753	.999	-.1367	.0912
		Hockey	-.07573	.03753	.470	-.1897	.0382
		Volleyball	-.06782	.03571	.552	-.1762	.0406
		Badminton	-.05072	.16459	1.000	-.5503	.4489
		Athletics	.04803	.13682	1.000	-.3673	.4634
		Taekwondo	-.04139	.14015	1.000	-.4668	.3840
	Table Tennis	Cricket	-.14114	.14402	.977	-.5783	.2960
		Hockey	-.24345	.14402	.694	-.6806	.1937
		Volleyball	-.20898	.14030	.813	-.6349	.2169
		Football	-.20884	.14236	.825	-.6410	.2233
		Table Tennis	.05072	.16459	1.000	-.4489	.5503
		Athletics	.09875	.12626	.994	-.2845	.4820
		Taekwondo	.00933	.12986	1.000	-.3848	.4035
	Badminton	Cricket	-.09042	.13402	.998	-.4972	.3164
		Hockey	-.19273	.13402	.839	-.5996	.2141
		Volleyball	-.15826	.13003	.927	-.5529	.2364
		Football	-.15812	.13224	.933	-.5595	.2433
		Table Tennis	-.04803	.13682	1.000	-.4634	.3673
		Badminton	-.09875	.12626	.994	-.4820	.2845
		Taekwondo	-.08942	.09217	.979	-.3692	.1904
	Athletics	Cricket	-.18917	.09795	.529	-.4865	.1082
		Hockey	-.29149	.09795	.059	-.5888	.0058
Anger		Volleyball	-.25702	.09241	.100	-.5375	.0235
		Football	-.25688	.09550	.126	-.5468	.0330
		Table Tennis	.04139	.14015	1.000	-.3840	.4668
		Badminton	-.00933	.12986	1.000	-.4035	.3848
		Athletics	.08942	.09217	.979	-.1904	.3692
	Taekwondo	Cricket	-.09975	.10255	.978	-.4110	.2115
		Hockey	-.20206	.10255	.502	-.5133	.1092
		Volleyball	-.16759	.09726	.672	-.4628	.1276
		Football	-.16746	.10021	.706	-.4716	.1367
		Table Tennis	.14114	.14402	.977	-.2960	.5783
		Badminton	.09042	.13402	.998	-.3164	.4972
		Athletics	.18917	.09795	.529	-.1082	.4865
	Cricket	Taekwondo	.09975	.10255	.978	-.2115	.4110
		Hockey	-.10231	.10777	.981	-.4294	.2248
		Volleyball	-.06785	.10276	.998	-.3798	.2441
		Football	-.06771	.10555	.998	-.3881	.2527
		Table Tennis	.24345	.14402	.694	-.1937	.6806
		Badminton	.19273	.13402	.839	-.2141	.5996
	Hockey	Athletics	.29149	.09795	.059	-.0058	.5888
		Taekwondo	.20206	.10255	.502	-.1092	.5133

		Cricket	.10231	.10777	.981	-.2248	.4294
		Volleyball	.03447	.10276	1.000	-.2774	.3464
		Football	.03461	.10555	1.000	-.2858	.3550
		Table Tennis	.20898	.14030	.813	-.2169	.6349
		Badminton	.15826	.13003	.927	-.2364	.5529
		Athletics	.25702	.09241	.100	-.0235	.5375
	Volleyball	Taekwondo	.16759	.09726	.672	-.1276	.4628
		Cricket	.06785	.10276	.998	-.2441	.3798
		Hockey	-.03447	.10276	1.000	-.3464	.2774
		Football	.00014	.10042	1.000	-.3047	.3050
		Table Tennis	.20884	.14236	.825	-.2233	.6410
		Badminton	.15812	.13224	.933	-.2433	.5595
		Athletics	.25688	.09550	.126	-.0330	.5468
	Football	Taekwondo	.16746	.10021	.706	-.1367	.4716
		Cricket	.06771	.10555	.998	-.2527	.3881
		Hockey	-.03461	.10555	1.000	-.3550	.2858
		Volleyball	-.00014	.10042	1.000	-.3050	.3047
		Badminton	.05959	.07792	.995	-.1769	.2961
		Athletics	.07473	.06477	.945	-.1219	.2713
		Taekwondo	.09685	.06635	.829	-.1046	.2982
	Table Tennis	Cricket	.48889*	.06818	.000	.2819	.6958
		Hockey	.23889*	.06818	.011	.0319	.4458
		Volleyball	.40114*	.06642	.000	.1995	.6028
		Football	.11097	.06740	.722	-.0936	.3155
		Table Tennis	-.05959	.07792	.995	-.2961	.1769
		Athletics	.01514	.05978	1.000	-.1663	.1966
		Taekwondo	.03725	.06148	.999	-.1494	.2239
	Badminton	Cricket	.42930*	.06345	.000	.2367	.6219
		Hockey	.17930	.06345	.089	-.0133	.3719
		Volleyball	.34154*	.06156	.000	.1547	.5284
		Football	.05138	.06261	.992	-.1387	.2414
		Table Tennis	-.07473	.06477	.945	-.2713	.1219
		Badminton	-.01514	.05978	1.000	-.1966	.1663
Vigor		Taekwondo	.02212	.04364	1.000	-.1103	.1546
	Athletics	Cricket	.41416*	.04637	.000	.2734	.5549
		Hockey	.16416*	.04637	.010	.0234	.3049
		Volleyball	.32641*	.04375	.000	.1936	.4592
		Football	.03624	.04521	.993	-.1010	.1735
		Table Tennis	-.09685	.06635	.829	-.2982	.1046
		Badminton	-.03725	.06148	.999	-.2239	.1494
		Athletics	-.02212	.04364	1.000	-.1546	.1103
	Taekwondo	Cricket	.39204*	.04855	.000	.2447	.5394
		Hockey	.14204	.04855	.068	-.0053	.2894
		Volleyball	.30429*	.04605	.000	.1645	.4441
		Football	.01412	.04744	1.000	-.1299	.1581
		Table Tennis	-.48889*	.06818	.000	-.6958	-.2819
	Cricket	Badminton	-.42930*	.06345	.000	-.6219	-.2367
		Athletics	-.41416*	.04637	.000	-.5549	-.2734
		Taekwondo	-.39204*	.04855	.000	-.5394	-.2447

		Hockey	-.25000*	.05102	.000	-.4049	-.0951
		Volleyball	-.08775	.04865	.618	-.2354	.0599
		Football	-.37792*	.04997	.000	-.5296	-.2262
		Table Tennis	-.23889*	.06818	.011	-.4458	-.0319
		Badminton	-.17930	.06345	.089	-.3719	.0133
		Athletics	-.16416*	.04637	.010	-.3049	-.0234
	Hockey	Taekwondo	-.14204	.04855	.068	-.2894	.0053
		Cricket	.25000*	.05102	.000	.0951	.4049
		Volleyball	.16225*	.04865	.020	.0146	.3099
		Football	-.12792	.04997	.172	-.2796	.0238
		Table Tennis	-.40114*	.06642	.000	-.6028	-.1995
		Badminton	-.34154*	.06156	.000	-.5284	-.1547
		Athletics	-.32641*	.04375	.000	-.4592	-.1936
	Volleyball	Taekwondo	-.30429*	.04605	.000	-.4441	-.1645
		Cricket	.08775	.04865	.618	-.0599	.2354
		Hockey	-.16225*	.04865	.020	-.3099	-.0146
		Football	-.29017*	.04754	.000	-.4345	-.1459
		Table Tennis	-.11097	.06740	.722	-.3155	.0936
		Badminton	-.05138	.06261	.992	-.2414	.1387
		Athletics	-.03624	.04521	.993	-.1735	.1010
	Football	Taekwondo	-.01412	.04744	1.000	-.1581	.1299
		Cricket	.37792*	.04997	.000	.2262	.5296
		Hockey	.12792	.04997	.172	-.0238	.2796
		Volleyball	.29017*	.04754	.000	.1459	.4345
		Badminton	-.33702	.14972	.322	-.7915	.1174
		Athletics	-.22672	.12446	.605	-.6045	.1511
		Taekwondo	-.06623	.12749	1.000	-.4532	.3208
	Table Tennis	Cricket	-.21327	.13101	.733	-.6109	.1844
		Hockey	-.31247	.13101	.249	-.7101	.0852
		Volleyball	-.23340	.12763	.600	-.6208	.1540
		Football	-.21983	.12950	.689	-.6129	.1733
		Table Tennis	.33702	.14972	.322	-.1174	.7915
		Athletics	.11030	.11486	.980	-.2383	.4589
		Taekwondo	.27079	.11813	.298	-.0878	.6294
	Badminton	Cricket	.12375	.12192	.972	-.2463	.4938
		Hockey	.02455	.12192	1.000	-.3455	.3946
Fatigue		Volleyball	.10362	.11828	.988	-.2554	.4626
		Football	.11719	.12030	.978	-.2480	.4823
		Table Tennis	.22672	.12446	.605	-.1511	.6045
		Badminton	-.11030	.11486	.980	-.4589	.2383
		Taekwondo	.16050	.08385	.541	-.0940	.4150
	Athletics	Cricket	.01346	.08910	1.000	-.2570	.2839
		Hockey	-.08575	.08910	.979	-.3562	.1847
		Volleyball	-.00667	.08406	1.000	-.2618	.2485
		Football	.00690	.08687	1.000	-.2568	.2706
		Table Tennis	.06623	.12749	1.000	-.3208	.4532
		Badminton	-.27079	.11813	.298	-.6294	.0878
	Taekwondo	Athletics	-.16050	.08385	.541	-.4150	.0940
		Cricket	-.14704	.09328	.765	-.4302	.1361

		Hockey	-.24625	.09328	.143	-.5294	.0369
		Volleyball	-.16717	.08848	.558	-.4357	.1014
		Football	-.15360	.09116	.697	-.4303	.1231
		Table Tennis	.21327	.13101	.733	-.1844	.6109
		Badminton	-.12375	.12192	.972	-.4938	.2463
		Athletics	-.01346	.08910	1.000	-.2839	.2570
	Cricket	Taekwondo	.14704	.09328	.765	-.1361	.4302
		Hockey	-.09921	.09804	.973	-.3968	.1984
		Volleyball	-.02013	.09347	1.000	-.3039	.2636
		Football	-.00656	.09601	1.000	-.2980	.2849
		Table Tennis	.31247	.13101	.249	-.0852	.7101
		Badminton	-.02455	.12192	1.000	-.3946	.3455
		Athletics	.08575	.08910	.979	-.1847	.3562
	Hockey	Taekwondo	.24625	.09328	.143	-.0369	.5294
		Cricket	.09921	.09804	.973	-.1984	.3968
		Volleyball	.07908	.09347	.990	-.2047	.3628
		Football	.09265	.09601	.979	-.1988	.3841
		Table Tennis	.23340	.12763	.600	-.1540	.6208
		Badminton	-.10362	.11828	.988	-.4626	.2554
		Athletics	.00667	.08406	1.000	-.2485	.2618
	Volleyball	Taekwondo	.16717	.08848	.558	-.1014	.4357
		Cricket	.02013	.09347	1.000	-.2636	.3039
		Hockey	-.07908	.09347	.990	-.3628	.2047
		Football	.01357	.09135	1.000	-.2637	.2909
		Table Tennis	.21983	.12950	.689	-.1733	.6129
		Badminton	-.11719	.12030	.978	-.4823	.2480
		Athletics	-.00690	.08687	1.000	-.2706	.2568
	Football	Taekwondo	.15360	.09116	.697	-.1231	.4303
		Cricket	.00656	.09601	1.000	-.2849	.2980
		Hockey	-.09265	.09601	.979	-.3841	.1988
		Volleyball	-.01357	.09135	1.000	-.2909	.2637
		Badminton	-.10963	.16847	.998	-.6210	.4017
		Athletics	-.10352	.14005	.996	-.5286	.3216
		Taekwondo	.09331	.14346	.998	-.3422	.5288
	Table Tennis	Cricket	-.12619	.14742	.990	-.5737	.3213
		Hockey	-.15873	.14742	.962	-.6062	.2887
		Volleyball	-.18052	.14362	.914	-.6165	.2554
		Football	-.28936	.14572	.492	-.7317	.1530
		Table Tennis	.10963	.16847	.998	-.4017	.6210
		Athletics	.00611	.12924	1.000	-.3862	.3984
Confusion		Taekwondo	.20294	.13293	.793	-.2005	.6064
	Badminton	Cricket	-.01656	.13719	1.000	-.4330	.3999
		Hockey	-.04910	.13719	1.000	-.4655	.3673
		Volleyball	-.07088	.13310	.999	-.4749	.3331
		Football	-.17972	.13537	.888	-.5906	.2312
		Table Tennis	.10352	.14005	.996	-.3216	.5286
		Badminton	-.00611	.12924	1.000	-.3984	.3862
	Athletics	Taekwondo	.19683	.09435	.424	-.0896	.4832
		Cricket	-.02267	.10027	1.000	-.3270	.2817

		Hockey	-.05521	.10027	.999	-.3596	.2491
		Volleyball	-.07700	.09459	.992	-.3641	.2101
		Football	-.18584	.09776	.550	-.4826	.1109
		Table Tennis	-.09331	.14346	.998	-.5288	.3422
		Badminton	-.20294	.13293	.793	-.6064	.2005
		Athletics	-.19683	.09435	.424	-.4832	.0896
	Taekwondo	Cricket	-.21950	.10497	.421	-.5381	.0991
		Hockey	-.25204	.10497	.241	-.5707	.0666
		Volleyball	-.27383	.09956	.109	-.5760	.0284
		Football	-.38267*	.10258	.005	-.6940	-.0713
		Table Tennis	.12619	.14742	.990	-.3213	.5737
		Badminton	.01656	.13719	1.000	-.3999	.4330
		Athletics	.02267	.10027	1.000	-.2817	.3270
	Cricket	Taekwondo	.21950	.10497	.421	-.0991	.5381
		Hockey	-.03254	.11032	1.000	-.3674	.3023
		Volleyball	-.05433	.10518	1.000	-.3736	.2649
		Football	-.16317	.10804	.802	-.4911	.1648
		Table Tennis	.15873	.14742	.962	-.2887	.6062
		Badminton	.04910	.13719	1.000	-.3673	.4655
		Athletics	.05521	.10027	.999	-.2491	.3596
	Hockey	Taekwondo	.25204	.10497	.241	-.0666	.5707
		Cricket	.03254	.11032	1.000	-.3023	.3674
		Volleyball	-.02179	.10518	1.000	-.3411	.2975
		Football	-.13063	.10804	.929	-.4586	.1973
		Table Tennis	.18052	.14362	.914	-.2554	.6165
		Badminton	.07088	.13310	.999	-.3331	.4749
		Athletics	.07700	.09459	.992	-.2101	.3641
	Volleyball	Taekwondo	.27383	.09956	.109	-.0284	.5760
		Cricket	.05433	.10518	1.000	-.2649	.3736
		Hockey	.02179	.10518	1.000	-.2975	.3411
		Football	-.10884	.10279	.965	-.4209	.2032
		Table Tennis	.28936	.14572	.492	-.1530	.7317
		Badminton	.17972	.13537	.888	-.2312	.5906
		Athletics	.18584	.09776	.550	-.1109	.4826
	Football	Taekwondo	.38267*	.10258	.005	.0713	.6940
		Cricket	.16317	.10804	.802	-.1648	.4911
		Hockey	.13063	.10804	.929	-.1973	.4586
		Volleyball	.10884	.10279	.965	-.2032	.4209
		Badminton	-.51005	.41198	.920	-1.7606	.7405
		Athletics	-.39986	.34249	.941	-1.4395	.6397
		Taekwondo	-.08979	.35081	1.000	-1.1547	.9751
	Table Tennis	Cricket	-1.00931	.36049	.096	-2.1035	.0849
		Hockey	-1.08028	.36049	.056	-2.1745	.0140
Total Mood Disturbance		Volleyball	-1.17294*	.35119	.019	-2.2390	-.1069
		Football	-.87786	.35635	.212	-1.9595	.2038
		Table Tennis	.51005	.41198	.920	-.7405	1.7606
		Athletics	.11019	.31605	1.000	-.8492	1.0695
	Badminton	Taekwondo	.42026	.32506	.902	-.5664	1.4069
		Cricket	-.49926	.33548	.814	-1.5176	.5191

	Hockey	-.57023	.33548	.688	-1.5885	.4481
	Volleyball	-.66289	.32547	.457	-1.6508	.3250
	Football	-.36781	.33102	.955	-1.3726	.6370
	Table Tennis	.39986	.34249	.941	-.6397	1.4395
	Badminton	-.11019	.31605	1.000	-1.0695	.8492
	Taekwondo	.31008	.23072	.882	-.3903	1.0104
Athletics	Cricket	-.60944	.24519	.202	-1.3537	.1348
	Hockey	-.68042	.24519	.102	-1.4247	.0638
	Volleyball	-.77307*	.23130	.019	-1.4752	-.0710
	Football	-.47800	.23905	.482	-1.2036	.2476
	Table Tennis	.08979	.35081	1.000	-.9751	1.1547
	Badminton	-.42026	.32506	.902	-1.4069	.5664
	Athletics	-.31008	.23072	.882	-1.0104	.3903
Taekwondo	Cricket	-.91952*	.25669	.008	-1.6987	-.1404
	Hockey	-.99049*	.25669	.003	-1.7697	-.2113
	Volleyball	-1.08315*	.24346	.000	-1.8222	-.3441
	Football	-.78807*	.25084	.036	-1.5495	-.0267
	Table Tennis	1.00931	.36049	.096	-.0849	2.1035
	Badminton	.49926	.33548	.814	-.5191	1.5176
	Athletics	.60944	.24519	.202	-.1348	1.3537
Cricket	Taekwondo	.91952*	.25669	.008	.1404	1.6987
	Hockey	-.07097	.26977	1.000	-.8898	.7479
	Volleyball	-.16363	.25721	.998	-.9444	.6171
	Football	.13144	.26420	1.000	-.6705	.9334
	Table Tennis	1.08028	.36049	.056	-.0140	2.1745
	Badminton	.57023	.33548	.688	-.4481	1.5885
	Athletics	.68042	.24519	.102	-.0638	1.4247
Hockey	Taekwondo	.99049*	.25669	.003	.2113	1.7697
	Cricket	.07097	.26977	1.000	-.7479	.8898
	Volleyball	-.09266	.25721	1.000	-.8734	.6881
	Football	.20242	.26420	.995	-.5996	1.0044
	Table Tennis	1.17294*	.35119	.019	.1069	2.2390
	Badminton	.66289	.32547	.457	-.3250	1.6508
	Athletics	.77307*	.23130	.019	.0710	1.4752
Volleyball	Taekwondo	1.08315*	.24346	.000	.3441	1.8222
	Cricket	.16363	.25721	.998	-.6171	.9444
	Hockey	.09266	.25721	1.000	-.6881	.8734
	Football	.29507	.25137	.939	-.4679	1.0581
	Table Tennis	.87786	.35635	.212	-.2038	1.9595
	Badminton	.36781	.33102	.955	-.6370	1.3726
	Athletics	.47800	.23905	.482	-.2476	1.2036
Football	Taekwondo	.78807*	.25084	.036	.0267	1.5495
	Cricket	-.13144	.26420	1.000	-.9334	.6705
	Hockey	-.20242	.26420	.995	-1.0044	.5996
	Volleyball	-.29507	.25137	.939	-1.0581	.4679

*. The mean difference is significant at the 0.05 level.

Table 13.1 showing the playing game wise Multiple comparisons in Profile of Mood State of elite athletes of Pakistan. The respondents were significantly different in tension, depression, anger, vigor, fatigue, confusion an total mood disturbance. Badminton, Athletics, Taekwondo, Cricket, Hockey, Volleyball and Football, and Table Tennis were the playing game wise groups of elite athletes of Pakistan.

DISCUSSION

To find out the similarities and variations between the empirical findings and findings from the previous researchers conducted by the different scientists from different corners of the world. The researcher firstly discusses the findings of the previous researchers which were conducted on the similar variables of the research study in hand. The researcher also discusses the findings of the present study to clarify the differences and similarities. The purpose of the discussion is to find out the gaps, which will then be analyzed in the conclusion section based upon certain recommendations.The below table shows the results of previous studies regarding the demographic difference pertaining role of sport in developing various psychological skills. Below the table, these findings are discussed with other findings.

Table 14. Findings of the Previous Studies

Year	Authors	Predictors	Findings
2019	Khan et al	Demographics	Findings revealed significance gender as well as format of sport-wise differences
2020	Khan et al		Significant differences based on gender, type of sport played and sport experience were found.
2020	Khan, Khan and Khan		Demographic attributes such as athletes and non-athletes and males versus females produced significant effect of outcome variable
2021	Khan et al		Gender, ethnic group and formats of sport produced significant effect on changing the mean score on criterion variable

Table 14 depicted the findings of the previous regarding the effect demographic attributes on changing the mean score of outcome variable. The current study revealed, no gender differences pertaining to POMS developed through sport have been found, however; insignificant statistical differences have been reported on various dimensions of POMS included Formats of Sport, Level of Sport's Participation, Coaching Styles of their Coaches, Playing Environment, Sport's Experience, Racial Group and Game participated in. Likewise, the current study indicated no gender, level of sport's participation, coaching styles of athletes, and sport experience wise differences were noted on self-satisfaction scale. However, statistical significant differences were measured on self-satisfaction scale based on formats of sport, playing environment, racial group and the game they participated in.Literature endorsed that demographic attributes of gender, racial group, mother language, format of sport and sports experience have paramount influence upon changing the mean score of dependent (outcome) variable (Khan et al, 2019;2020;2020;2021). Keeping this into consideration, it can be said that the findings obtained through study are parallel to the findings of previous studies.

CONCLUSION

The present study was conducted to determine the effects of selected demographic factors upon Mood States based on the athletes' sport-experiences in the homeland country Pakistan. The athletes those who participated at national as well as international sport events such as Volleyball Table Tennis, Badminton, Athletic, Taekwondo, Cricket, Hockey, Volleyball, and Football participated in the study. A differences of opinion, if exists, seeing Gender, Formats of Sport, Level of Sport's Participation, Coaching Styles of

their Coaches, Playing Environment, Sport's Experience, Racial Group and Game participated in was also measured.

It has been concluded that no gender, level of sport's participation, coaching styles of athletes, and sport experience wise differences were noted on self-satisfaction scale. However, statistical significant differences were measured on self-satisfaction scale based on formats of sport, playing environment, racial group and the game they participated in.

Sport psychologists, physical educationists and other sport professionals are working to develop sport model and polices and researchers are continuing to find ways to develop and maintain the public's health from physical and mental health perspectives. If we cannot motivate the people towards sport participation, our health standard of the public's health will surely be diminishing. The findings of the current research suggest that sport can contribute to the overall development of its participants. In the future, it is hoped that this research will lead to a decrease in psychological as well as physiological problems by providing the benefits of sport participation.

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