

ANALYSIS OF PSYCHOLOGICAL AND PHYSIOLOGICAL VARIABLES AMONG HIGH AND LOW PHYSICAL FITNESS MALE UNIVERSITY HANDBALL PLAYERS

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ABSTRACT

The purpose of the study was to compare the high and low physical fitness male university handball players in psychological and physiological variables. To attain this aim 175 handball players were selected from south-north zone inter university tournament for men. The selected subjects were divided into high and low physical fitness groups based upon their performance in AAHPERD youth fitness test. The selected psychological variables – regression, fixation, resignation, and aggression (manual frustration questionnaire variables) were assessed by following, Tiwari.G and Chauhan.N.S manual frustration questionnaire (1972). The physiological variables, breath holding time, vital capacity, resting pulse rate, and blood pressure were assessed by manual method, wet Spiro meter, radial pulse method and Sphygmomanometer respectively. The data was analysed by following ANOVA. The results of the study showed that high physical fitness handball players showed high fixation and aggression when compared to low physical fitness handball players group. High physical fitness group had less regression and resignation when compared to low physical fitness group. The results also revealed that breath holding time and vital capacity of high physical fitness group was significantly higher when compared to low physical fitness group. The resting pulse rate was significantly less in high physical fitness group, and there was no significant difference in blood pressure between high and low physical fitness handball players group.

Keywords: High and low physical fitness, frustration, and physiology.

INTRODUCTION

Science has established the fact that all efficient functioning of the body improves when it is used and regresses when it is not used. This means that all normal organs of the body perform more efficiently and effectively when they are regularly exercised. Human body is built to be active and thrives on activity. This realization has acquired for physical education and fitness programme an imperative place in the scheme of education in almost all the countries. Further, the need of physical education and fitness program becomes more and more urgent today as a result of increasing use of machines resulting a lesser and lesser use of muscular parts of the body. Sport is psychophysical as well as a social activity. The main objective of sports is to develop physical and psychological health. Further it has to integrate or to bring about Psychophysical coordination, socialization and culture interaction and thus to develop a spirit of tolerance.

The repeated failure in spite of planning and efforts puts one in the state of utter confusion and bewilderment. This state of an individual is termed as frustration. Frustration leads to one or combination of four psychological variables namely regression, fixation, resignation, and aggression. Participation in regular physical activity has been shown to be important for health and quality of life. Physical activity also influences physiological and psychological parameters. Playing handball game at university level demands rigorous physical activity. As the physical activity has the influence on psychological and physiological variables, there may be differences in physical on psychological and physiological variables with the difference in fitness levels. Hence the present study has been formulated to verify the effects of high and low physical fitness on selected psychological and physiological variables. Frustration: It can be defined as the blocking of a desire or needs. It refers to failure to satisfy a basic need because of conditions, either in the individual or external obstacles. Regression: Regression means reversion to primitive or childish forms of expression or behaviour. Fixation: It is psychological: a strong attachment to a person or thing, especially such an attachment formed in childhood or infancy and manifested in immature or neurotic behavior persists throughout life. Resignation: An individual tends to withdraw himself from the situation that causes frustration or failure. Aggression: Aggression is defined as “an act whose goal response is injury to an organism. Genevieve(2006) his study states that aggression in team sports as a function of gender, competitive level, and sport type. The results revealed that male players always display more aggressive behaviors than female players, whatever the sport, the competitive level or the nature of the observed aggression;

instrumental aggressive behaviors increase and hostile aggressive behavior decrease when competitive level rises. The Frustration Scale by N.S. Chauhan and Govind Tiwari was used to measure frustration. He concluded that the maximum resignation frustration was seen among the Indians, whereas the maximum regression was seen among the Iranian. The females tended to be aggressive, whereas the males were aggressive and resigned. The expression of frustration in aggression led to balanced mental status, whereas regression resulted in neuroticism. Adolescents both from India and Iran had more aggression-frustration in comparison with their adult counterparts. The Indian women had predominantly more aggression whereas Iranian females had regression. Werner Helsen and Janet Starkes (2002) examined the relative importance of attributes determined largely by the efficiency of the visual or central nervous system versus cognitive domain specific skills, in the determination of expertise in soccer. A stepwise discriminate analysis of both non-specific abilities and soccer-specific skills revealed an average squared canonical correlation = 0.84, with the significant step variables all being domain-specific skills. Pown Radha In this study, psychological factors, namely sports competition anxiety and aggressiveness were studied in relation to soccer playing ability. Sports Competition Anxiety Test (SCAT) questionnaire and Aggressiveness Questionnaire (AQ) developed by Rainer, Marten and Smith were adopted to measure the anxiety and aggressiveness. Experts subjectively rated the soccer playing ability of the subjects (0 to 10 point scale). He concluded that, to these two psychological factors, aggressiveness is highly correlated with soccer playing ability at insignificant level. The results of this investigation revealed that moderate levels of anxiety and aggressiveness are present among the South Indian-University Soccer players.

METHODOLOGY

For the purpose of the study 175 (N=648) handball players were selected from 54 university teams, participated in south-west zone inter university competition for men held at Annamalai University by following random sampling method. Further the selected players were divided into high and low physical fitness groups based on the AAHPERD youth fitness test. For this the scores of each item were converted to standard score by using Hull scale (The formula. $50 + 100 \div 7 (X - \text{Mean})$ the subjects physical fitness composite scores were derived. The composite scores were arranged in descending order and thirty three percentage of scores of the subjects (58) from the top and thirty three percentage of scores of the subjects (58) from the bottom were selected for high and low physical fitness groups respectively. The scholar made an attempt to compare selected psychological and physiological variables between high and low physical fitness male university handball players.

Psychological variables are regression, fixation, resignation, and aggression. The psychological variables were assessed by a questionnaire constructed by Tiwari G. and Chauhan N.S. The questionnaire consists of 40 questions. Each variable is assessed by ten questions. The physiological variables breath holding time, vital capacity resting pulse rate and blood pressure were assessed by following manual method, wet spirometer, radial nerve method, and sphygmomanometer respectively.

DESCRIPTION OF THE QUESTIONNAIRE:

Tiwari. G. and Chauhan. N. S. manual frustration questionnaire (1972) was used to measure the student's general frustration level. It consists of forty statements. It means measures frustration on four dimensions *viz.* regression, fixation, resignation and aggression. Each of the four modes of frustration has ten items. Each item has six options from "very much" to "not at all".

METHOD OF SCORING:

The frustration test has forty statements. Each of the forty items has six answers from "very much" to "not at all". A score of 5 was given to the response "very much", 4 for "much", 3 for "ordinary", 2 for "less" and 1 for "very less" and 0 for "not at all". The high score indicates that the student is saturated with frustration and the lower score "0" indicates no frustration. There are four categories of frustration in this test namely regression, fixation, resignation and aggression. The score for each of the four categories varies between 0 and 40. The question number items that measure regression are 1, 5, 9, 13, 17, 21, 25, 29, 33 and 37, fixation 2, 6, 10, 14, 18, 22, 26, 30, 34 and 38, resignation 3, 7, 11, 15, 19, 23, 27, 31, 35 and 39 and aggressions 4, 8, 12, 16, 20, 24, 28, 32, 36 and 40. The scores obtained for regression, fixation, resignation, and aggressions were added separately. The total score for each of the dimensions was considered for statistical treatment.

RELIABILITY OF THE DATA:

The reliability of the data was established by test - retest method. 10 subjects were randomly selected from various university handball teams and they were tested twice by the same testers and similar conditions on each criterion variable. Since the obtained values were much higher than required value, the data were accepted as

reliable in terms of instruments, tester, and subjects. The intra-class correlation technique was used to find out the reliability of the data with test - retest scores on each criterion variable separately and they are presented in Table I.

EXPERIMENTAL DESIGN AND STATISTICAL ANALYSIS:

The experimental design used for this study was static group comparison design. The study compares the state of psychological and physiological parameters of high and low physical fitness university handball players. The data collected was analysed by one way analysis of variance to identify the differences between high and low physical fitness groups. The level of significance selected to accept or reject the hypotheses was 0.50 level. The data collected on the criterion variables, i.e., regression, fixation, resignation, aggression, breath holding time, vital capacity, resting pulse rate, systolic blood pressure, and diastolic blood pressure were analysed separately by using ANOVA and the results were presented below.

TABLE – II

ANALYSIS OF VARIANCE FOR THE DATA ON REGRESSION, FIXATION, RESIGNATION, AGGRESSION, BREATH HOLDING TIME, VITAL CAPACITY, RESTING PULSE RATE, SYSTOLIC BLOOD PRESSURE, DIASTOLIC BLOOD PRESSURE AMONG HIGH AND LOW PHYSICAL FITNESS MALE UNIVERSITY HANDBALL PLAYERS.

Sources of Variables	High physical fitness	Low Physical fitness	Sum Squares	of Degree of Freedom	Mean sum of squares	'F' ratio
Mean	30.96	33.62	B: 204.45	1	204.45	
REGRESSION						4.73*
SD	6.65	6.50	W:4931.59	114	43.26	
Mean	28.72	26.28	B:171.39	1	171.39	
FIXATION						4.16*
SD	7.47	8.69	W:4691.19	114	41.15	
Mean	23.19	25.27	B:276.22	1	276.22	
RESIGNATION						4.21*
SD	7.47	8.69	W:7488.50	114	65.69	
Mean	33.12	29.76	B:327.80	1	327.80	
AGGRESSION						8.37*
SD	6.10	6.41	W:4462.78	114	39.15	
Mean	56.68	47.55	B:2415.80	1	2415.80	
BREATH HOLDING TIME						4.10*
SD	2.24	2.58	W:67148.60	114	589.00	
Mean	220.36	207.02	B:5164.45	1	5164.45	
VITAL CAPACITY						5.14*
SD	30.54	32.78	W:114396.38	114	1003.48	
Mean	68.91	72.38	B:348.28	1	348.28	
RESTING PULSE RATE						10.60*
SD	6.26	5.15	W:3744.22	114	32.84	
Mean	121.12	120.86	B:1.94	1	1.94	
SYSTOLIC BLOOD PRESSURE						0.03
SD	6.87	8.12	W:6449.05	114	56.57	
Mean	80.31	79.50	B:19.04	1	19.04	

DIASTOLIC BLOOD PRESSURE						0.61
SD	5.15	6.03	W:3582.91	114	31.43	

- Significance at 0.05 level
- Table value for significance at 0.05 levels with DF 1 and 114 is 3.93.

DISCUSSION ON FINDINGS:

The results of the study indicated that among the four psychological variables, high physical fitness group was significantly less in regression and resignation when compared to low physical fitness group, and also in conformity with present results fixation and aggression higher for high physical fitness group, when compared to low physical fitness group. This Phenomenon is due to the fitness and the other factors like more instrumental aggressive behavior, team sports, ability, the type of training and length of training etc., might have also contributed the finding of Banga, Metz and Alexander, Pawan Radha, and Genevieve are also in conformity with present results. In the physiological variables breath holding time, vital capacity and resting pulse rate are better for high physical fitness group. In case of systolic blood pressure and diastolic blood pressure there was no significant difference between high and low physical fitness groups. The findings of Bucher, Leloahov, etc., also support the findings of the present study.

CONCLUSION & RECOMMENDATIONS:

Based on the analysis of the data, the following conclusion were drawn

1. Among the selected psychological variables, regression and resignation were significantly less in high physical fitness handball group when compared to low physical fitness handball group.
2. In case of fixation and aggression players of high physical fitness group were significantly higher when compared to low physical fitness group of handball players.
3. In the physiological parameters, high physical fitness handball players were significantly better in breadth holding time, vital capacity and resting pulse rate when compared to low physical fitness handball players.
4. There was no significant difference between high and low physical fitness groups of handball players in systolic and diastolic blood pressure.
5. The results of the study indicate that aggression, resignation and regression are the best discriminator psychological variables in order of priority that classified the high and low physical fitness male university handball players.
6. The results of the study indicate that the resting pulse rate and vital capacity are the best discriminator psychological variables in order of priority that classified the high and low physical fitness male university handball players.

Recommendations

1. Efforts may be undertaken using audiovisual aids to educate the low physical fitness students and its effect can be assessed.
2. Proper physical fitness programme may be designed and implemented for the low physical fitness students to improve their physical and psychological capabilities.
3. Similar study may be conducted on subjects belonging to various age groups.
4. The physical education teachers, and coaches/sports trainers should consider the psychological factors while imparting teaching and training to the students, athletes and players. They should lay emphasis on mental fitness and psychological conditioning.

A comparative study on physical fitness and psychological parameters between athletes and players may be conducted to find out the level of fitness and psychological variation.

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