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A study of aggressive behaviour and adjustment in Individual and team women players in relation to their performance

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Abstract

The purpose of the study was to study the psychological parameters (Aggression and Adjustment), which influence the performance of women athlete considerable in positive or negative way. The sample subjects had been delimited to the population confined to the All India Inter University and Zonal Inter University women participants in Individual Sports viz. Judo, Gymnastics, Athletics and Team Sports viz. Hockey Basketball and Cricket. (n = 140 each game randomly selected)

The Aggression Questionnaire (AQ) by Dr. G.C. Patti (English and Hindi version) was used for measuring aggressive behaviour. The Adjustment Inventory for College Students (AICS) by Dr. AKP Singh and Dr. R.P. Singh (English and Hindi version) was used to measure Home, Health, Social, Emotional and Educational as well as Total Adjustment.

Analysis of variance technique was used to study the effect of various independent variables on aggression and adjustment. Whenever the F-ratio was significant in ANOVA; t-test was applied after F-test. The whole statistical work deals with study of independent and interaction effects as well as mean difference in aggression and adjustment of individual (Judo, Gymnastic and Athletic) and team (Hockey, Cricket and Basketball) women players in relation to their performance i.e. winners and defeaters of said tournaments.

The result revealed significant difference in aggressive behaviour and adjustment level in individual and team players as well as between winners and defeaters. Whereas there was no significance found in certain adjustment variables between individual and team women players.

Keywords: Aggression, Adjustment, Women Players, Individual Players, Team Players, Related to their performance.

1. Introduction

The ability of a person to perform in any sports event is obviously limited by his/her physical characteristics. There is almost a consensus among the sports scientists that comparative performance of an individual or a team depends upon his/her number of potentials including those dimensions, skill dimensions and most importantly upon the psychological and behavioral dimensions.

Research and practical experience have indicated that the ability of athletes undergo social and physical stress of participation in high level of competition can be improved by psychological approach. Suinn (1976)^[37] Jean Clavate Killy, a three-time winner of Olympic gold medals, reported that his only preparation for one race was to ski (the course) mentally. Suinn uses several techniques of sports psychology to enhance performance. Of course, the methods were tailored to meet the need of each athlete.

Presently coaches and physical educators have become more conscious and concerned about the psychological and sociological aspects of sports rather than merely physiological fitness and skill in the various activities. They realized that psychological and sociological characteristics of the participants contribute more towards their success than mere physical fitness. They further need to know more about principles of motor learning, patterns of growth and development, the role of emotional phenomena, and motivation for the peak performance, interpersonal relationship and character traits of the athletes. Hall (1908)^[17] reiterated that physical education is not an end in itself but it is for sake of mental and moral culture. It is to make the intellect feeling and will more vigorous, sane, supple and resourceful. Suinn (1976)^[37] and Llewellyn & Blucker (1982)^[23] have

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stressed on use of specifically tailored psychological techniques to suit a particular event of sports person like many other trained techniques initiated in professional sports, the sports psychology has begun to occupy a prominent place in the design of sports programs.

It is believed that biological capabilities of athlete have reached to the saturation point. Therefore future record will be broken with psychological approach of the competition, it is well documented that performance in sports at high level is characterized by a strong reliance upon understanding the psychological make-up of the performer.

Recent increasing scientific investigations and keen observations by coaches and physical education personnel in the fields have brought to light a variety of physical, physiological, sociological, cultural and environmental factors that are taught to be responsible for success in sports. The involvement of psychology in sports has largely arisen from a traditional interest in areas such as personality, motivation, self-concept, anxiety, creative thinking, aspiration, etc. There are still numerous psychological dimensions, which directly or indirectly influence results of competitive sports. The present research has made an attempt to explore non-conventional unexplored dimensions of psychology, which have direct bearing on sports performance. The dimension refers to the role of aggression and adjustment in women players.

The word Aggression comes from the Latin root *aggredi*, ad (to or toward) and *gradior* (walk). Literally, then the word means to walk towards or approach to “move against” or to “move with intent to hurt or harm”. (May 1972). The major problem when studying aggression in sports or any other environment is in finding an acceptable universal definition. Most psychologists’ desirable aggression in terms of behavior Johnson (1972) [21] Aggressive behavior has been associated with destructive acts, sexual attack, prejudice, speech, sport and exercise, crying, complaining and so forth. Miller (1979) [25] there is then no simple behavior that may be described under the rubric “aggression”. Obviously the term aggression carries numerous connotations whether we are studying sport or

non-sport behaviour. Terms such as “acceptable aggression”, “acceptable violence”, “controlled violence” and “aggressiveness” are all inaccurate uses of the term aggression when applied to a sport context. Aggression has directional components, some aggression is directed inward and its extreme form may culminate in self-destructive behaviour including suicide. Other aggressive behaviour is directed towards others.

All coaches are aware of the athletes who display anger towards him, self-aggression that often limits effective performance. Other athletes seem equally hampered by the tendency to aggress against others in ways that are not condoned by rules. In context of sports, aggression may be considered within various categories or as various degrees of aggressive behavior. For example social psychologists and sociologists studying sport have often focused their attention on hostile and aggressive behaviour of crowds and fans attending games. The incidence and magnitude of hostility in sports fans has attracted widespread interest, research a horror! An entire book was devoted to the aggression shown by lower middle class British soccer / football (Williams Dunning and Murphy, 1984) [38] and Golstein’s collection of essay’s (1983) [16] also contain a great deal of information about the variables leading to fan violence. Other behavioral scientists have studied the aggressive behaviour of athletes themselves.

Some contemporary work by sport’s psychologists in several countries has focused upon problems that might be termed “probability” research. They have tried to “tease out” the variables that lead to high probabilities of aggression in sports competitions. The measures of aggression have ranged from hostile verbal exchanges to fights, to the number of fouls committed. Another dimension of this problem area is the suggestion that various sports differ in both the amount and the nature of aggression for their optimum execution.

Various sports may be categorized according to the *degree and type of aggression* they reflect and can be arranged on a continuum from those encouraging direct aggression to those in which little aggressive action may be observe.

	Direct Aggression Encouraged	Limited Aggression	Indirect Aggression Against Opponent	Indirect Aggression Against Object	Little Observed Aggression
DEGREE					
EXAMPLE	Boxing Judo American-Football Thailand-Kick Boxing	Basketball Soccer	Hockey Tennis Volleyball	Athletic (Field event) Golf Cricket	Athletic (Track event) Modern Gymnastics Figure Skating

Conceivably, the personality traits and states of athletes interact with the demands of these sports in both obvious and subtle ways. Some younger athletes, who possess varying degrees of aggressive tendencies perhaps learned in their youth, may tend to select sport that requires a compatible degree of aggression. In contrast continued participation in a sport may mold the aggressive tendencies of participants.

Since the turn of the century, scholars have attempted to formulate theories and models to explain the causes and effects of human hostility and aggression. Several prominent theories of aggression have been advanced in psychological literature.

Three major theories have been formulated to explain the occurrence of aggression in man (1) the instinct Theory, (2) The frustration-aggression hypothesis, (3) The social learning theory. Freud (1920.1950) [14], have explained these theories. The most plausible view of aggression today is that while aggression may have some innate determinants these determinants may be modified through learning. Aggression is not inevitable in human’s can learn not to aggress just as he / she can learn to aggress.

Sports offer an ideal area of life in which to study aggression. Some instinctive theorists believe that participation in sport

provides social acceptable outlet for aggression without the accompanying feeling of guilt. If an athlete has a high drive to aggress, sport participation may lower that drive because the athlete is given the opportunity to aggress, especially in conclusion sports such as football and hockey and in pugilist sport such as boxing & judo. Some have hypothesized that an athlete may escape the guilt feeling that result from violent expression of aggression. Providing that the athlete plays by the rules (Beisser, 1967; Husman, 1970) ^[5, 19]

At least two major questions can be raised about the relationship between aggression and sports or general physical activity. 1. *How do we control violence in sport?* 2. *Does sport or physical activity control, reduce or eliminate aggression?* Our emphasis here shall be on answering the latter question because the former is ultimately answered in the latter. The theoretical position \s renewed above suggest quite different relationships between sport and aggression. According to the instinct theory man must have some opportunity to express his inevitable aggressive behaviour. Thus instinct theory prescribes sport as a mild aggressive activity to reduce aggressive instigation. Smith (1971) ^[35] states that when an individual is operating under stress he/she often becomes anxious and hyper tense. One useful remedy for this situation is a heavy bout of physiological and psychological equilibrium. If the individual does not release this excess energy through a healthy outlet such as sports, it could be stored up and expressed later as hostile or violent behaviour.

Why do athletes aggress in sports? A number of reasons have been proposed to explain the reason athletes engage in retaliatory aggression in sport, aggression that transcends hard play and the spirit and meaning of the rules. These reasons include those that coincide with various theories of aggression that have been discussed as well as various operational and situational variables. The moral and ethical climate of sport may at times condone aggression, while at time removing or lowering the guilt of those who aggress. Silva (1979) ^[32] for example found that basketball players who exhibited physical or verbal aggression against opponents felt significantly less than did subjects who displayed aggressive acts in a non-sport setting. Brown (1982) ^[9] found that both males and females who participated frequently in contact sport were more willing to use aggression than were those who reported that they rarely participated in such sports. Bredemeier (1985) ^[8]. She analyzed interviews of forty female and male basketball players and assessed their feelings about the legitimacy of aggressive behaviour along a seal of injurious acts. Silva (1983) ^[33] suggests that at times aggression in sport represents a negative socialization process however Zelman (1971) ^[39] indicate that activation through exercise or other means, is likely to magnify expressed aggression. Capor and colleagues (1986) ^[11] also found that in a laboratory context, both highly likely to instigate and less irritable subjects expressed more aggression when pedaling a bicycle-ergometer.

The concept of Adjustment is originally biological as propounded in theory of natural selection and adaptation. The concept of adaptation was borrowed by psychology and named adjustment. Adjustment is a continuous process of maintaining harmony among the attributes of the individual and the environmental conditions which surrounds him. There are three fundamental factors in making adjustments are *wants, satisfaction, difficulties*. It must be recognized that the satisfaction of all human wants is impossible. The perspective on adjustment is an organized way of looking at people in the process of formulating their life goals and coping with the resolving their psychological problems. There are four main

perspectives of adjustment: The psychoanalytic, the behavioral, the cognitive and the humanistic.

The most widely emphasized aspect of adjustment is achievement. In the form of neuroses, psychoses, and character disorders, defects of adjustment waste the manpower resources of the community and require huge custodial and therapeutic expenditures. If we talk about adjustment in terms of achievement or achievement in sports, that is, how good or bad it is, then we must consider the criteria to determine the quality of adjustment. These criteria are used in assessing the adequacy of adjustment of sportsmen/sportswomen. These are Psychological Comfort: The most compelling sign of adjusted failure is that a person is psychologically in some way. Although *Emotional Adjustment* is a process by which athlete becomes able to cope with emotions in relation to one's psychological discomfort and mental make-up, Work Efficiency: another sign of adjusted difficulties is ability to make up full use of occupational or social capacities or skills. This can be cured by the process of psychological treatment improving *Educational Adjustment* by which athlete is able to cope with the failure in college and adjust in any social educational environment causes higher achievement. Physical Symptoms: Sometimes the only evidence of inadequate adjustment appears in the form of damage to body tissues. The field of psychosomatic medicine has developed because has developed because of increasing recognition that physiological damage can be brought about by psychological malfunctioning. The physical symptoms have psychological origins which may respond and cured by psychotherapy and result in *Health Adjustment* i.e. the condition of athletes organism which measures the degree to which aggregate power are able to function. Social Acceptance: Some kind of socially acceptable and quite useful, that is, they are what other person want. The athlete whose mode of adjustment leads him/her to behave in way that are dangerous to himself or to others will ultimately be hospitalized or imprisoned by modern society. The arbitrariness limits the scientific applicability of the criterion in assessment of adjusted adequacy which flexibly improved by *Home and Social Adjustment*, the process by which an athlete is able to keep [ace and every changing situation in his/her family and able to cope with social demands to achieve his/her performance.

Bidulph (1954) ^[6, 7] reported that a well-adjusted athlete uses her skills and tactics to perform wisely on her environment. Superior athlete shows higher levels of personal and social adjustments than that of less skilled athletes; therefore, adjustment is positively related with sports performance. Whereas Krall and Carlyon (1967) ^[22] have reported no difference between superior and inferior participants. In fact no studies have reported a negative correlation between adjustment and sports performance.

The various kinds of habits that people acquire in attempts to satisfy their motives are called adjustment. There are usually many possible ways to solve problems. Sportsman faced with the emotional problem posed by failure etc. are included among them in the mechanism of realistic scientific attack on problems as well as the more primitive mechanism of hostile aggression against obstacles. Sanford (1965) ^[29] said that motivated behaviour is blocked and goals are often either very difficult to reach or are altogether unobtainable; there are also reluctances, contrary-mindedness, competitions, resentments, aggression, hostilities and frustrations pervasive and perhaps inevitable." Aggression is the outcome of the 'anger' which is powerful emotion and which very often results in hostility and destruction. In order to overcome maladjusted behaviour of

aggression such as anger needs our immediate attention.

The major issue in the present competitive world of sports is to investigate the role psychological parameters, which influence the performance of athlete considerably. This influence is sometimes positive on some athlete and negative on other athletes. Hence special interest has been expressed in studying the psychosocial and environmental factors causing differences in sports performance. There has been considerable interest in recent years on studies related to women sports, especially in context of sports psychology, which has marked improved results in performance. The attention of the investigator has been emphasizes on creative thinking, self-awareness, confidence, attitude, adjustment etc., whereas in context of women level of aggression and adjustment was slightly untouched though it has an important role in the performance achievement. The purpose of the study is to provide a comprehensive knowledge; to the coaches and trainers; of psychological factor like adjustment and aggression, which could be channelized to achieve optimum performance from their athletes.

Aggression by Horby A.S. (1948) ^[18] is an unprovoked hostility, Jack and Judy (1982) ^[20] mentioned it as hostility or violence, Baron R.A. (1969) ^[4] viewed aggression as being either annoyance-motivated or incited-motivated, whereas suggested aggression as optimistic approach, which was supported later by Bandura A. (1973) ^[3] and Dequette (1981) ^[10]. However Freud S. (1920) ^[14] believed that aggression as a necessary redirection of man's desire for self destruction, Later in (1930) Frued held a hydraulic view of aggression, assuming that aggressive impulses were constantly being generated with in the body and that unless released through overt aggressive acts these would build up to intolerable and dangerous levels.

Adjustment according to consists of psychological process by means of which individual manage to cope with various demands and processes of life, whereas viewed that adjustment is a function of the efficiency with which an individual generate positive rewards and punishments.

The athlete is a person who engage herself in sports or recreation; one who is trained or skilled in exercises sports or games requiring physical strength, agility or stamina; one who engages in sports is fair generous, a good loser and a gracious winner; one who practices or is skilled in the field of sports, one who has qualities and shows the spirit required of a sportsman. The individual players are those who are engaged in individual competitive sports activities as judo, boxing, gymnastics, wrestling, athletics, etc. Whereas the team players are those who is engaged in group competitive sports activities as hockey, football, cricket, basketball, etc. Here the performance relation is the performance of high levels i.e. the superior athletes who are winners at All India Interuniversity Tournaments (AIU) or Zonal Interuniversity Tournaments, whereas the low performers are the inferior athletes who lost in AIU Tournaments or the Zonal Tournaments.

Material and Methods

Sample: Population for the study systematically consisted of all the 939 sports women who participated in the then AIU Tournaments in team games viz. Cricket, Basketball, Hockey and individual games viz. Judo, Gymnastics, Athletics. Stratified random and simple random technique had been followed. Out of total population 70 winners and 70 defeaters from each sport were randomly selected, by following simple random sampling technique leading to total sample of 840 women players, which composed of 89.14% of the population.

Variables: Keeping in view the educational importance and

performance in sports, following variables were selected for this study: Aggression; Adjustment: Home, Health, Social, Emotional and Educational; Performance: Winner, Defeaters.

Tools and Techniques: 'Aggression Questionnaire' (AQ) by Dr. G.C. Patti (English and Hindi version) consists of 16 questions, was used to measure the level of aggression. Each question describes a situation, where some form of aggression or deviant behaviour has occurred and also some person who have responded to that in low to mildly aggressive, moderately aggressive and highly aggressive manners. Result of the pilot study indicated, and several psychologists opined that all 16 questions were good enough as aggression questions. *Reliability* coefficient of the aggression questionnaire was calculated by "split-half method" of the 16 questions. 8 odd and 3 even questions supplied the halves. The correlation for a group of 225 subjects was calculated, which showed a measure of reliability i.e. 'r' for split-half was 55 and 'r' for the whole questionnaire was 71. To find out the reliability the group of psychiatrists and clinical psychologists n=19 were given the comparable questionnaire (statements in questionnaire of n-aggression, 323). The *validity* coefficient is significant above one percent level. Sigma deviate weighting method as formulated by Likert was used for scoring. A schedule was prepared to score individual performance.

'Adjustment Inventory for College Students' (AICS) by Dr. A.K.P. Singh and Dr. R.P. Singh (English and Hindi version) consists of 102 questions to measure five dimensions of adjustment viz. Home-16, Health-15, Social-19, Emotional-31, Educational-21 and Total Adjustment was used. Item analysis was done by calculating bi-serial correlation of each item (i) with the total score of the inventory and (ii) with the area total scores. *Reliability* coefficient was determined by (i) split-half method (ii) Hoyt's analysis of variance method (iii) K.R. Formula-20. Test retest reliability was also determined by administering the test after a period of 3 weeks on 228 students which is 10% of the total sample, for each item; which ranged between 0.82 - 0.97. The *validity* in item analysis coefficient were determined for each item by bi-serial correlation method and only such items were retained which yielded bi-serial correlation which both the criteria (i) total score and (ii) area score, significant of 001 level. Inter-correlation among the five areas of the inventory was also calculated, which revealed that correlation among various areas from 0.14 to 0.32 with an average of 0.22. The inventory was also validated by correlating inventory-scores with hostel superintendents ratings. Product moment coefficient of correlation between the inventory scores and superintendents rating was obtained to be 0.58. The categorization was done by dividing the base line of the normal curve into five equal units, each unit being equal to 1.2 for scoring.

Administration of Tests: In order to administer the test/tools on the sample selected in view to get the true responses, the sports women were assured for confidentiality by personal assurance by the investigator. The tests were administered at the competition venue under the direction and the supervision of the investigator. The questionnaires were administered in accordance with the instruction laid down in the manual.

Data Analysis: Analysis of variance technique was used to study the effect of various independent variables on aggression and adjustment. Whenever the F ratio was significant in ANOVA, t-test was applied after F test. The whole statistical

work deals with study of independent and interaction effects as well as mean differences in aggression and adjustment of individual and team women players in relation to their performance (winners and defeaters) in then AIU tournaments; for which two way analysis of variance technique was employed separately for Aggression and Adjustment areas – A, B, C, D, E, and Total adjustment. The two independent variables were events (individual and team) and position (winners and defeaters).

Results

The results are divided into seven sub sections i.e.

(1) Analysis of Aggression level of women winners and defeaters of individual and team events: In this study the result reveals that the calculated value of F-ratio in relation to event viz. individual and team is greater than the table value at 1/836 df at 05 level. Further the mean scores of individual events women players is 476.98 and of team event women player is 467.32. It shows that Individual Women Players (IWP) have significantly higher mean aggression score of Team Women Players (TWP). It means that IWP are more aggressive than TWP.

Mean aggressive scores of women winners and defeaters of team and individual events

	Individual	Team	
Winners	483.42	479.13	481.27
Defeaters	470.55	455.51	463.03
	476.98	467.32	

It also reveals that calculated value of F-ratio to position viz. winners and defeaters is greater than the table value at 1/836 df at 01 level. It shows that winners and defeaters differ significantly in aggressive behaviour. Further the mean scores of winners is 481.28 and of defeaters is 463.03. It shows that winners have significantly higher mean aggression score than the defeater which concludes that the winner women players of AIU Tournament are more aggressive than the defeaters.

Summary showing ANOVA for aggression scores of individuals and team women players in relation to their Position i.e. winners and defeaters (N= 840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	19610	19610	6.37 *
Position (B)	1	69930	69930	22.70 **
Interaction	1	6060	6060	1.97
Within (A x B)	836	2575120	3080.29	---

* Significant at 05 level of confidence; ** Significant at 01 level of confidence

The result indicates that the calculated value of F-ratio in relation to interaction effect (A x B) is less than the table value at 1/836 df at 05 level. So, the hypothesis of no significant A x B interaction is accepted at 05 levels, which means that winners as well as defeaters of individual and team events separately do not seem to show any significantly interaction on aggressive behaviour.

(2) Analysis of Home adjustment level of women winners and defeaters of individual and team events: In this study the result reveals that the calculated value of F-ratio in relation to event viz. individual and team is less than the table value at

1/836 f at 05 level. It shows that individual and team players do not differ significantly in Home Adjustment. It also reveals that calculated value of F ratio in relation to position viz. winners and defeaters is greater than the value at 1/836 df at 01 level. It shows that winners and defeaters differ significantly in Home Adjustment. Further, the mean scores of winners is 3.79 and of defeaters is 4.96. it shows that winners have significantly lower mean Home Adjustment score than the defeaters. So it can be concluded according to AICS test manual that winners are better home adjustment than the defeaters. The hypothesis of no significant A x B interaction is accepted at 05 level, which means total winner and defeaters of individual and team events separately do not seem to show any significant interaction on home adjustment.

Mean Home adjustment of winners and defeaters of team and individual events

	Individual	Team	
Winners	4.05	3.53	3.79
Defeaters	4.94	4.98	4.96
	4.49	4.25	

Summary showing ANOVA for Home adjustment of Individual and Team women players in relation to their position i.e. winners and defeaters: (N = 840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	12.14	12.14	1.52
Position (B)	1	287.00	287.00	36.01 **
Interaction	1	16.86	16.86	2.12
Within (A x B)	836	6662.87	7.97	---

** Significant at 01 level of confidence

(3) Analysis of Health adjustment level of women winners and defeaters of individual and team events: In this study the result reveals that the calculated value of F-ratio in relation to event viz. individual and team is greater than the table value at 1/836 df at 05 level. It means that individual and team players significantly differ in Health adjustment. Further, the mean scores of individual event women player is 3.70 and of team events women players is 4.11. It shows according to AICS test manual that IWP are better health adjusted than of TWP.

Mean Health Adjustment scores of Winners and Defeaters of Team and Individual events

	Individual	Team	
Winners	3.20	3.28	3.79
Defeaters	4.21	4.94	4.57
	3.70	4.11	

It also reveals that the calculated value of F-ratio in relation to position viz. winner and defeaters is greater than the table value at 1/836 df at 01 level. It means that winners and defeaters differ significantly in Health Adjustment. Further, the mean scores of winners is 3.24 and of defeaters is 4.57. It shows that winners have significantly lower mean score than defeaters. So it can be concluded according to AICS test manual that winners are adjusted than the defeaters.

Summary showing ANOVA for Health Adjustment of Individual and Team Women Players in relation to their position i.e. winners and defeaters: (N = 840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	34.81	34.81	4.77*
Position (B)	1	374.67	374.67	51.37**
Interaction	1	23.00	23.00	3.15
Within (A x B)	836	6097.09	7.29	---

* Significant at 05 level of confidence; ** Significant at 01 Level of confidence

The result indicates that the calculated value of F-ratio in relation to interaction effect (A x B) is less than the value at 1/836 at 05 level, which seem to show any significant interaction on Health Adjustment.

(4) Analysis of Social adjustment level of women winners and defeaters of individual and team events: In this study the result reveals that the calculated value of F ratio in relation to events viz. individual and team is less than the table value at 1/836 df at 05 level. It shows that individual and team players do not differ significantly in Social Adjustment.

Mean Social Adjustment scores of Winners and Defeaters of Individual and Team events

	Individual	Team	
Winners	7.24	7.38	7.31
Defeaters	8.37	9.00	8.68
	7.80	8.19	

It also shows that calculated value of F ratio in relation to position viz. winners and defeaters is greater than the table value at 1/836 df at 01 level. It means that winners and defeaters differ significantly in Social Adjustment. Further, the mean scores of winners is 7.31 and of defeaters is 8.68. it shows that winners have significantly lower mean scores than defeaters. So it can be concluded according to AICS test manual that winners are better socially adjusted than the defeaters of AIU tournaments.

Summary showing ANOVA for Social Adjustment of Individual and Team Women players in relation to their position i.e. winners and defeaters: (N=840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	30.85	30.85	2.62
Position (B)	1	396.34	396.34	33.68**
Interaction	1	12.14	12.14	1.03
Within (A x B)	836	9835.65	11.76	---

** Significant at 01 level of confidence

It also indicates that the calculated value of F ratio is less than the table value at 1/836 at 05 level. So, the hypothesis of no significant A x B interaction is accepted at 05 level, which concludes that winners and defeaters of individual and team events separately do not seem to show any significant interaction on social adjustment.

(5) Analysis of Emotional adjustment level of women winners and defeaters of individual and team events: In this study the result reveals that the calculated value of F ratio in relation to events viz. individual and team is less than the table value at 1/836 df at 05 level. It shows that individual and team players do not significantly in Emotional Adjustment.

Mean Emotional Adjustment scores of Winners and Defeaters of Team and Individual events

	Individual	Team	
Winners	13.01	12.69	12.85
Defeaters	14.78	16.15	15.46
	13.89	14.42	

It also shows that calculated value of F ratio in relation to position viz. winners and defeaters is greater than the table value at 1/836 df at 01 level. It means that winners and defeaters differ significantly in Emotional Adjustment. Further, the mean scores of winners is 12.85 and of defeaters is 15.46. it shows that defeaters have significantly higher mean scores than winners. So it can be concluded according to AICS test manual that winners are better emotionally adjusted than the defeaters.

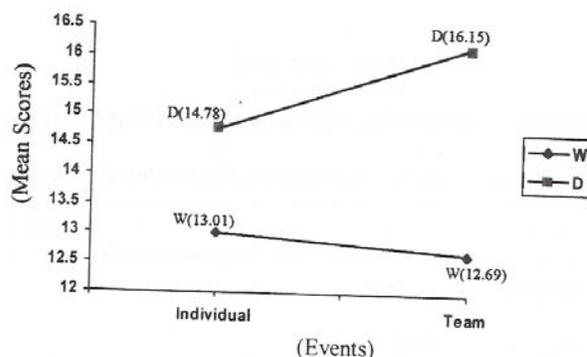
Summary showing ANOVA for Emotional Adjustment of Individual and Team Women players in relation to their position i.e. winners and defeaters: (N=840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	56.58	56.58	1.94
Position (B)	1	1435.24	135.24	49.29**
Interaction	1	150.87	150.87	5.18*
Within (A x B)	836	24338.56	29.11	---

*Significant at 05 level of confidence; ** Significant at 01 level of confidence

It also indicates that the calculated value of F ratio in relation to interaction effect (A x B) interaction is rejected at 05 level, which means that winners and defeaters of individual and team events separately seem to show significant interaction on emotional adjustment. It shows that winners and defeaters are not same with respect of their events i.e. team and individual on level of emotional adjustment. To explore the exact source of significance A x B interaction graphical representation is depicted and mean scores are shown in the table.

Illustration of the phenomenon of interaction A x B between winners and Defeaters (B) of individual and team events (A) women players in emotional adjustment.



(6) Analysis of Educational adjustment level of women winners and defeaters of individual and team events: In this study the result reveals that the calculated value of F ratio in relation to events viz. individual and team is greater than the table value at 1/836 df at 01 level. It shows that individual and team players do not differ significantly in Educational Adjustment. Further, the mean scores of individual events is 6.27 and of team event is 7.25. It shows that team event women players have significantly higher mean scores than individual women players. So it can be concluded according to AICS test manual that individual event women players are better educationally adjusted than the team events women

players of AIIU tournaments.

Mean Educational Adjustment scores of Winners and Defeaters of Team and Individual events

	Individual	Team	
Winners	5.56	5.99	5.77
Defeaters	6.99	8.51	7.75
	6.27	7.25	

It also shows that calculated value of F ratio in relation to position viz. winners and defeaters is greater than the table value at 1/836 df at 02 level. It shows that winners and defeaters differ significantly in Educational Adjustment. Further, the mean scores of winners is 5.77 and of defeaters is 7.75. It shows that winners have significantly lower mean score than defeaters which means according to AICS test manual that winners are better emotionally adjusted than the defeaters.

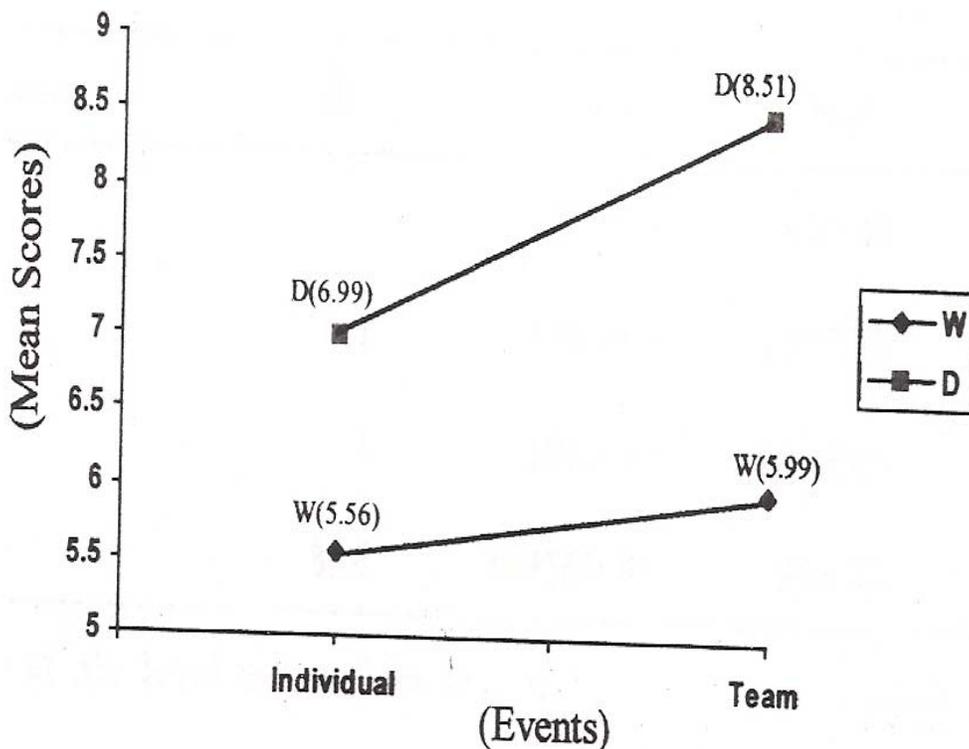
Summary showing ANOVA for educational adjustment of individual and team women players in relation to their position i.e. winners and defeaters: (N=840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	199.14	199.14	17.63**
Position (B)	1	822.09	822.09	72.79**
Interaction	1	62.42	62.42	5.52*
Within (A x B)	836	9441.12	11.29	---

* Significant at 05 level of confidence; ** Significant at 01 level of confidence

It also indicates that the calculated value of F ratio in relation to interaction effect (A x B) is greater than the table value at 1/836 at 05 level. So, the hypothesis of no significant (A x B) interaction is rejected at 05 level, which means that winners and defeaters of individual and team events separately seem to show significant interaction on educational adjustment. It shows that winners and defeaters are not same with respect of their events i.e. team and individual on level of educational adjustment. To explore the exact source of significance A x B interaction graphical representation is depicted and mean scores are shown in the table.

Illustration of the phenomenon of interaction (A x B) between winners and defeaters (B) of individual and team events (A) women players in educational adjustment



(7) Analysis of Total adjustment level of women winners and defeaters of individual and team events

In this study the result reveals that the calculated value of F ratio in relation to events viz. individual and team is less than the table value at 1/836 df at 05 level. It shows that individual and team players do not differ significantly in Total Adjustment.

Mean Total Adjustment scores of Winners and Defeaters of Team and Individual events

	Individual	Team	
Winners	33.07	32.86	32.96
Defeaters	39.29	43.58	41.44
	36.18	38.22	

It also shows that calculated value of F ratio in relation to position viz. winners and defeaters is greater than the table value at 1/836 df at 01 level. It shows that winners and defeaters differ significantly in Total Adjustment. Further the mean scores of winners is 32.96 and of defeaters is 41.44. It shows that winners have significantly lower mean scores than defeaters, which means according to AICS test manual that winners are better adjusted than the defeaters of AIIU women tournaments.

Summary showing ANOVA for Total Adjustment of Individual and Team Women players in relation to their

position i.e. winner and defeaters: (N=840)

Sources of variation	df	S.S.	M.S.	F-ratio
Event (A)	1	876.40	876.40	0.92
Position (B)	1	15070.7	15070.7	15.76**
Interaction	1	1060.85	1060.85	1.11
Within (A x B)	836	799569.85	956.42	---

** Significant at 01 level of confidence

It also indicates that the calculated value of F ratio in relation to interaction effect (A x B) is less than the table value at 1/836 at 05 level of confidence. So, the hypothesis of no significant (A x B) interaction is accepted at 05 level, which means that winners as well as defeaters of individual and team events separately do not seem to show significant interaction on total adjustment.

Discussion of Result

The first objective of the study was to find out the independent and interaction effects of individual and team players on aggression and adjustment level in relation to their performance i.e. winners and defeaters.

The results of the two-way Analysis of Variance revealed that individual and team events had significant independent effect on aggression and caused variation in adjustment; interaction of these independent variables caused variation in adjustment. On the basis of these findings, the first hypothesis of the study is accepted for : (a) significant independent effect of individual and team events on aggression of winners and defeaters; (b) significant independent effect of individual and team events on home and educational adjustment; whereas all adjustment were as on winners and defeaters; (c) significant interaction effect of individual and team events on emotional and educational adjustment : and the same hypothesis is rejected for : (a) no significant independent effect of individuals and team events on home, social, and total adjustment.

These findings were supported by the results achieved by Ogilive and Tulko (1966) [27], Singer (1967) [34], Biddulph (1954) [6, 7] and Subhash (1974) [36] conducted study on sportsmen.

The second objective of the study was to find out differences in five whereas and total adjustment between team and individual event players, and between winners and defeaters in both the player type. The result of two – way (2 x 3) ANOVA and t test after significant f test revealed that team vents viz. Ho., Cr. & B.B. and individual events viz. Ju., Gy. & Ath. Differ significantly in five whereas total adjustment between winners and defeaters. On the basis of these findings, the second and third hypothesis is accepted respectively for : (a) Ho., Cr., and B.B. players differ significantly in home, health, social emotional and total adjustment; (b) Ju., Gy. and Ath. Players differ significantly in emotional, educational and total adjustment; (c) Winners and defeaters of Ho., Cr. And B.B. events differ significantly in home, health, social, emotional educational and total adjustment; (d) Winners and defeaters of Ju., Gy., and Ath. Events differ significantly in home, health, social, emotional, educational and total adjustment.

The same hypothesis is rejected respectively for: (a) Ho., Cr. And B.B. event women players do not differ significantly in educational adjustment; (b) Ju., Gy. and Ath. event women players do not differ significantly in home, health and social adjustment. Interaction of Ho., Cr. And B.B. players was significant in health, social, emotional, educational and total adjustment; whereas Ju., Gy. And Ath. players had significant interaction on emotional and total adjustment.

These findings, were supported by the results achieved by Das

(1983) [12], Evan and Quarterman (1983) [13], Macceiner (1983) [24], Nasib Singh (1988) [26] Sharma (1990) [30] and Sharma (1993) [31]: The third objective of the study was to find out difference in aggressive behaviour between team and individual event players, and between winners and defeaters in both player types. The results of two – way (2 x 3) ANOVA and t test after significant F-test revealed that team events viz. Ho., Cr. And B.B. and individual events viz. Ju., Gy. and Ath. differ significantly in aggressiveness between winners and defeaters. On the basis of these findings, the fourth and fifth hypothesis is accepted respectively for: (a) Ho., Cr. And B.B. players differ significantly in aggressiveness; (b) Ju., Gy. And Ath. players differ significantly in aggressiveness; (c) Winners and defeaters of Ho., Cr. And B.B. vents differ significantly in aggressiveness; (d) Winners and defeaters of Ju., Gy. and Ath. events differ significantly in aggressiveness.

The interaction effects were also found significant in Ho., Cr. And B.B. as well as in Ju., Gy. and Ath. events. These findings were supported by the results achieved by Matru *et al.*, (1964), Peterson, Weber and Trousdale (1967) [28], Zillman Johnson and Day (1974) [40], Brown (1982) [9] conducted study on sportsmen.

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