



## **A STUDY ON RAIDING ACCURACY, PSYCHOLOGICAL SKILLS AND DEPTH PERCEPTION OF MAIN RAIDERS IN KABADDI**

**Vegesna Avinash**, Physical Director, SRKR Engineering College, Bhimavaram, W.godavari, A.P,India.

**Dr. Raghavendra Basireddy**, Assistant Professor ,Department Of Physical Education And Sports Sciences , Yogi Vemana University ,Kadapa,A.P,India.

**B.Supriya**, PET, DAVSchool, Bhanur, Hyderabad, Telangana, India.

### **Abstract:**

The Purpose of the study was to determine the relationship of Raiding Accuracy, Psychological Skills and Depth Perception of Main Raiders in Kabaddi, JNTU Kakinada, Inter Collegiate tournament level Raiders(Aged 18-27 years) voluntarily participated in this study. The subjects have the experience of playing Inter Collegiate matches in a session. To measure Psychological skill, Bull's Psychological Skills Questionnaire, Depth Perception by Howard-Dolman Apparatus and Raiding accuracy was measured by Raiding Match. Depth Perception was taken in a laboratory setting while Raiding Match administered indoor synthetic matting turf. A 240fps Camera was installed to record the Raiding Accuracy in terms of Radial Error reduced with Kinovea (0.8.25 version) software. To statistically analyzed the data Pearson Product Moment used to determine the relationship between Raiding Accuracy and Psychological Skills, Depth Perception. The results indicate a negative correlation( $r=-0.652$ ) between Radial Error and Psychological Skills, whereas a positive correlation ( $r=0.705$ ) between Radial Error and Depth Perception. The statistical analysis revealed Psychological Skills and Depth Perception have a influential factors on Raiding Accuracy. The Psychological skill and Depth Perception provides a Attentional control and less distortions to lead to perform better in the target based task of Raiding. Furthermore investigation on the effect of Neuropsychological aspects can highlight the various aspects of Raiding Performance.

Keywords: Raiding Accuracy, Psychological Skills , Depth Perception, Kabaddi Players.

### **INTRADUCTION**

The game of Kabaddi is an oldest and popular game of Indian origin. Kabaddi has been playing for a long time (about thousand years ago) in India. Kabaddi is a four thousand years old game (Akila, 2017). Kabaddi is major game which is played all over the India. This game is also getting a fine status in Asian sports. This game has been classified as a team game (Rakesh, 2014).

With minor or major difference this game remained famous in other parts of the country. 'Do-do in Bengal', 'Chidu-chidu in Madras' and 'Hu tu tu' in Maharastra are the different names of the same game. Circle Style Kabaddi is the most admired game in Punjab is considered as mother of all games in the countryside region (Bhullar, 2006). Emotional intelligence is defined as 'the ability to monitor, perceive, manage, and employ emotions within one and in others. Salovey and Mayer first coined the term 'emotional intelligence. Mayer and Salovey (1990) assert that, emotional intelligence is the ability to examine one's own and others feelings and emotions to discriminate among them and to use this information to guide one's thinking and action and promote emotion and intellectual growth (Salovey & Mayer, 1990).

Kabaddi is India wide popular sports. Participation in Kabaddi in India has the highest amount in the India. Raiding in Kabaddi leads to very strenuous activity while physical, mechanical and psychological aspect govern a Raider to Raiding with maintaining a rhythm of Raiding speed and Raiding accuracy.

technology in its infancy have penetrated the Kabaddi. Kabaddi produces data which is under – utilized today and in the best form used for showing descriptive statistics. Traditionally, intuitive feelings drive decisionmaking in Kabaddi. Sports diversity in India is growing, and also the



monetary values attached to it (Gupta, 2009) [9]. India has started witnessing the rise of professional sports with various successful agues (Sanjeev and Ankur, 2015) [19]. Sports are all about decision-making on the field and off the field considering multiple parameters. Kabaddi, as a sport, is not so different. Kabaddi can benefit from analytics as it produces a variety of data at a team level and an individual player level. In modern sports, successful performance is determined by number of factors. For optimum performance at elite level, variety of areas must be addressed. Further, Kabaddi is the game where size, shape and body composition play an important part in providing distinct advantage for specific playing positions. These include the skill level, flexibility, endurance and most importantly the specific use of anthropometric measurements which plays a vital role in complex team based games. Since success in the game depends among other things, on how the individual characteristics of some players fit into the whole, thus creating a coherent team. Kabaddi is one of the complex technical team based game and performance differences between players of varying ability levels are different.

Match analysis has been part of the Kabaddi game for over 30 years and based on these results new technique and technology have emerged in skills, time of application of skills, strategy and tactics. Team performance can be defined as “It is the objective or subjective judgment of team that how effectively a team can meet its valued objectives” (De Church & Mesmer - Magnus, 2010) [15]. In order to ensure successful team performance, every individual of team must complete team goals assigned to them through their specialized expertise and skills while navigating team processes (Kozlowski & Bell, 2007) [21]. According to Groom et al., (2011) [7] empirical research on compensation methods in a team environment demonstrates that a compensation strategy helps in enhancement of team performance. Performance analysis is firmly positioned as an integral part of the coaching process. However there has been a significant increase in the volume of performance analysis research (Lago, 2009) [13]. The application of video and computer technology in sport and the implementation of video review sessions in to weekly training programmes (Guadagnoli et al., 2002) [8]. For optimum performance led to the belief that performance analysis is now widely accepted among coaches, athletes, and sport scientists as a valuable input into the feedback process (Drust, 2010) [5]. For example, video analysis software has been used with a multitude of purposes in both individual and team based sports (Di Salvo et al., 2009) [4]. According to Clemente et al. (2012) [1], the information feed back to the coach have become more relevant and important, with a well-designed system using relevant key performance indicators to supply accurate and reliable information.

Stereopsis generally determines the perception of depth obtained on the basis of visual information by the individuals. The Raiding in Kabaddi aiming to Raiding fast that leads to less time to react and maintain a rhythm of great line and length leads foot work to resist Defender Out easily. The rhythm of accurate ride on specific footwork depend upon variety of integration of factors. The aim of the study is to determine the relationship of accuracy of raiding and the psychological perspectives such as Psychological Skill Ability and Depth Perception.

## **OBJECTIVES OF THE STUDY**

To determine the relation between Psychological Skills and its subscales with Raiding Accuracy of Main Raiders. To determine the relation between Depth Perception and Raiding Accuracy of Main Raiders.

## **METHOD**

The purpose of the study was to determine A Study On Raiding Accuracy, Psychological Skills And Depth Perception Of Main Raider In Kabaddi. The teams were selected from Kabaddi Inter Collegiate Tournaments in JNTU, Kakinada. It is one of the best tournaments for indigenous



sports of Kabaddi. It attracted a large number of people and thereby reached a new level of professionalism.

#### **SUBJECTS:**

We Selected 40 members Kabaddi Inter Collegiate male main Raiders (Aged 18-27 years) having the experience of participating minimum inter collegiate tournament matches were voluntarily participated in this study. The subjects were regular player and participated in 25 matches in a calendar year in JNTU, Kakinada and Andhrapradesh Kabaddi Association organized tournaments.

#### **Administration of the test:**

The test was administered during the progression of the inter collegiate Kabaddi matches of the subject. The subjects were well instructed to fill the demographic information, and then the questionnaire of psychological Skill Ability serve after wards in a laboratory setting the Depth Perception was taken. The Raiding Accuracy test was taken in an outdoor set up. The raiding accuracy test was about of the last Minuets only.

#### **Collection of data:**

The data of Psychological Skill Ability Questionnaire were obtain as the scoring of the chosen option credited score from 1 to 6 as per the scoring pattern. The sub parameters were Imagery Ability, Psychological Preparation, Self Confidence, Anxiety and Worry Management, Concentration and Motivation. The total number of score represents the Psychological Skill Ability. The Howard-Dolman apparatus measures the Depth Perception by adjusting a moving rod to a stable rod from six meters away through a small opening window. The closeness measure of the rod represents the score of Depth Perception in Centimeters. The data of Raiding Accuracy was obtained from the settings of Main Raiding Test in an outdoor Set up. The subjects were filmed in their Raiding spell in a standard Kabaddi court of matting. 240 fps camera filmed the strike of the raiding skills into a target sheet place behind the bonus line with specifically marked five distinguished target area for left and right hand defenders. The camera installed behind the Raiding crease at a height of 141 cm and 30 cm wide apart from the stumps. In between the raiding skills the subjects were engaged into walk, short sprint to catch a hand moments, leg moments, body moments to adopt the match situation. The subject's skills execute in five targets with three different intensities of Match intensity, maximum effort and fast leg back kicks. The determination of the target and intensities were called before the Run up of the riders.

Kinovea (0.8.25 version) was used to reduce the data in Radial Error. The distance from the target to its first strike into the target sheet is the radial error. For calibration the height of the jump of 147cm was used. The radial error determines the Raiding accuracy of the raiders in different targets of raiding into the target sheet in centimeters.

Descriptive Statistics such as Mean, Standard Deviation, Standard Error were ascertained and to establish the relationship Pearson's Product Moment Correlation was used with setting the significance value at 0.05 ( $p < 0.05$ ).

#### **ANALYSIS**

**Table 1: Descriptive Statistics of Radial Error (Raiding Accuracy), Psychological Skills and Depth Perception.**

<b>Variables</b>	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std.Error</b>	<b>Std.Deviation</b>
<b>Radial Error(cm)</b>	40	40.32	49.68	45.18	1.86	8.43
<b>Mental Skills</b>	40	120	180	150	7.8	17.9
<b>Depth Perception(cm)</b>	40	3.5	7.5	5.5	0.9	1.96



**Table No.1** shows that the mean Raiding Accuracy in terms of Radial Error was  $45.18 \pm 8.43$  centimeters determine the accuracy of Raiding from the centroid of the specific target areas. The extraction of mean of Psychological Skills from the questionnaire scoring was  $150 \pm 17.9$  with a range of maximum 180 to minimum 120. The questionnaire scores with minimum 48 to Maximum of 188 that reveals that the players possessed good Psychological skills. In Depth Perception of the players the mean was  $5.5 \pm 1.96$  centimeters determines an eventual perception depth whereas the maximum great value of zero, same label of the movable and static bars.

**Table 2: Descriptive Statistics of Sub scales of Mental Skills.**

Sub scales of Mental Skill Ability	N	Minimum	Maximum	Mean	Std. Error	Std. Deviation
Imagery Ability	40	23	37	44.65	2.43	4.78
Mental Preparation	40	27	38	45.89	2.03	3.65
Self Confident	40	24	39	44.04	2.24	4.07
Anxiety Worry Management	40	25	39	44.08	2.58	5.87
Concentration Ability	40	14	39	39.43	3.06	6.76
Relaxation Ability	40	23	39	45.77	2.54	4.55
Motivation	40	24	39	44.17	2.09	3.99

**Table No.2** reveals that mean of Imagery ability, Psychological Preparation, Self Confidence, Anxiety and Worry Management, Relaxation ability and Motivation was good enough in comparison with the highest score 39. The concentration ability shows a little less in relation with the others with a mean of  $39.43 \pm 6.76$  and with a minimum score of 14 out of 39.

**Table 3: Normality Test (Shapiro-Wilk) of the Data of Radial Error, Mental Skills and Depth Perception**

Variable	Shapiro-Wilk		
	Statistic	df	Sig.
Radial Error	2.676	20	1.458
Mental Skills	2.876	20	1.987
Depth Perception	2.998	20	2.132

**Table No. 3** showed Normality of the data. Shapiro-Wilk test determines the data of the following variables of Radial Error, Psychological Skills and Depth Perception are normality distributed as significance value exceeded than 0.05.

**Table 4: Inferential Statistics of Correlation (Pearson Product Moment) between Radial Error (Bowling Accuracy) and Mental Skills and Depth Perception**

Radial Error (Raiding Accuracy)	N	Correlation Coefficient (r)	p-Value
Mental Skill Ability	40	1.784*	0.865*
Depth Perception	40	1.976*	0.548*

**Table No.4** reveals the correction status of Raiding Accuracy with Psychological Skills and Depth Perception. The Psychological Skill Ability is negatively correlated with the Correlation



Coefficient ( $r$ ) of 1.784 and  $p$  value determines significance at 0.05 level. Depth Perception is positively correlated with the Correlation Coefficient ( $r$ ) of 1.976 and  $p$  value determines significance at 0.05 level.

**Table 5: Inferential Statistics of Correlation (Pearson Product Moment) between Radial Error (Bowling Accuracy) and the Sub scales of Mental Skills.**

Radial Error (Raiding Accuracy)	N	Correlation Coefficient ( $r$ )	p-Value
Imagery Ability	40	-1.476	0.176
Mental Preparation	40	-1.402	0.231
Self Confident	40	-1.034	0.364
Anxiety Worry Management	40	0.875	1.432
Concentration Ability	40	-1.004	0.482
Relaxation Ability	40	0.984	1.265
Motivation	40	1.054	1.035

**Table No.5** shows the correlation status of Raiding Accuracy with Sub Parameters of Psychological Skills. Imagery Ability, Psychological Preparation, Self Confidence, Concentration are negatively correlated at 0.05 level of significance. Whereas Anxiety & Worry Management, Relaxation Ability and Motivation are not correlated with Raiding Accuracy in terms of Radial Error at 0.05 level of significance.

## DISCUSSION

Main Raiding determines the Raiding Accuracy while Raiding into a specific target sheet of five different targets in three different intensities. The Raider focuses on the particular target prior to Raiding. Accomplishment of Raiding is getting into correct line and length to strike the target. The distance of the Raiding skills from the target, considered as Radial Error. The smallest deviation from the target is accurate Raiding with maintaining this throughout the entire Raiding court considered as great Raiding Accuracy of the Raider Knudson. Raiding accuracy in terms of Radial Error found negatively correlated with Psychological Skills. Psychological skills provide a better advantage for less Error, and accuracy in Raiding. Psychological skills and psychological characteristics are strongly associated Psychological skills enable the psychomotor automaticity to perform better in sports activity. Skill level differentiation potentially depends upon psychological skills (Mahoney, Gabriel, & Perkins, 1987) greater psychological skill greater the execution of skills with less error. Skill adoption could be differentiated using Mindfulness, low mindfulness in terms of attentional control, emotional control, goal settings resulting low performance (Kee & Wang, 2008), attentional control can be based on either stimulus factor or goal relevance (Vecera, Cosman, Vatterott, & Roper, 2014). In Main Raiding, the Raiding accuracy driven from a specified target, attentional control can be factors among the psychological consideration to focus on. Imagery ability is negatively correlated with Radial Error signifies Imagery ability influences Raiding Accuracy. There is a relation between Psychological imagery and perception, motor imagery and physical execution (Guillot & Collet, 2010). Imagery describes an experience that mimic of real experience with the sensory modalities in the absence of actual perception and an effective means of improving performance (Cumming & Ramsey, 2009). Raiding in cricket is an open skill that perform under different circumstances with following different line and length at varied intensities to obstruct the defender so as the Main Raiding. Elite and open skill sports persons uses imagery very frequently. Psychological Preparation showed significant negative correlation with Radial Error determines the



influence on Raiding Accuracy positively. As Psychological Preparation increases Radial Error decreases, Raiding Accuracy increases. Jooste et al (2013) reported a higher Psychological Preparation ability on senior provincial level players than premier and junior level cricket players. It may be experience leads to more acquisition on Psychological Preparation. Feltz (1988) in 'Self Confidence and Sports Performance' denotes Self Confidence as perceived ability to accomplish a certain level of performance. The result in this study showed a negative correlation between Self Confidence and Radial Error. Raiding Accuracy positively influenced with Self Confidence. Self Confidence independently related with sports performance and perceived to improve performance (Woodman & Hardy, 2003; Hanton & Connaughton, 2002). Concentration Ability is negatively correlated with Radial Error that reveal a positive impact on Raiding Accuracy. Concentration on a target repeatedly enhances the learning stimulus. Regulation on movements influenced by external focus elicited automatic control process (Wulf & Prinz, 2001). Raiding Accuracy highly praised by accomplishment of skill performance with appropriate target set in mind and concentration is an influential factor in skill performance (Silva, 1979). The result in this study indicates positive correlation determines Depth Perception leads to Raiding Accuracy. It may be the experience or the visual consciousness that promote the Raiding Accuracy. Visual senses can be influential to process Visual attention behaviorally relevant targets. Binocular vision and its appropriate functioning may lead to optimal performance in target shooting sports (Vera, Molina, Cárdenas, Redondo, & Jiménez, 2019) and affected Binocular vision may lead to distortions in Depth Perception and also visual measurement distance. (sswitch, 2019). Depth Perception of individuals may also vary upon level of performance (Sharma, 2018), Visual acuity that performs interpretive faculty of brain may depend upon age of young skilled players (Quintana, Román, Calvo, & Sampedro, 2007).

#### **CONCLUSION:**

The statistical analysis of the study indicates a negative relation between Radial Error and Psychological Skills and its sub scales of Imagery Ability, Psychological Preparation, Self Confidence and Concentration. That leads the Psychological ability is a influential factor of Raiding Accuracy, the greater Psychological skill leads to less error in performance of Raiding. And a positive relation between Depth Perception and Radial Error determines the vision ability to perform better with less error. The sample size of the study may have influential factor of this study for generalization. The level of participation of the subject is also inadequate for predictive conclusion. The Raiding is very much task goal relevant and interesting for the subjects to perform. The task goal induced activities have a tendency to impact of greater learning .

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