

# Factor Structure Study on Selected Psychological Variables Among Junior I-League Players.

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## ABSTRACT:

The purpose of the study was to investigate various psychological characteristics of Junior I-League football players. Major objectives of the study was to find prominent factors of the mental toughness and self-efficacy among Junior I-League football players. The study was delimited to 48 players selected from four clubs with 12 players each. The clubs are Gokulam Kerala F C, F C Kerala, Parappur F C and Kerala blasters F C. The study was hypothesized as there will not be any psychological factors among Junior I-League football players. The data were collected by psychological tools namely self-efficacy questionnaire and mental toughness questionnaire. The data were collected from the football players by administering the questionnaires directly. The players were assured regarding the confidentiality of their responses. The data was converted into data and analyzed by computing descriptive statistics, and factor analysis. To address the research issues, hypotheses were tested and discussed. The study had concluded as that there is prominent psychological factors among Junior I-League football players after the analysis of the data.

## Keywords:

Psychological, Junior I-League football players, factor structure.

## 1. INTRODUCTION

Today's world is so advanced that every aspect of life is dominated by science and technology sports is not an exception to it. Technology has forever changed our world, and in the process significantly increased the importance of measuring and controlling performance relevant to psychological and physiological variables. Sport science has a significant role in identifying, monitoring, and developing young talented athletes (Williams & Reilly, 2000).

Football is the most widely played ball game in the world and the most popular as a separator sport. The simplicity of rules and the fact that it can be played practically everywhere practically everywhere as contributed to this popularity. It is played in all countries an in more than 200 countries. The I-League, formerly known as national football league is the men's top football league in India. For sponsorship reasons, the league is officially known as the Hero I-League. The I-League is controlled by the All India football federation (AIFF), the official manager of all professional football in the country. The AIFF was founded in 1937, out of a desire to unite what had until then been a largely regional sport. The first

professional league formed by the AIFF was the National football league (NFL) founded in 1996.

Psychology is defined as the systematic study of behaviour and mental processes. Gould, et al. (2002) described mental toughness in terms of resilience, perseverance, and dealing successfully with adversity. Jones, Hanton, and Connaughton (2002) suggested that mental toughness is having a natural or developed psychological edge that enables performers to cope with the plethora of demands made upon them, Self-efficacy as personal judgment of one's capabilities to organize and execute course of action to attain designated goals, and he sought to assess its level, generality, and strength across activities and contexts.

### 1.1 STATEMENT OF THE PROBLEM

The purpose of the study was to find out the "factor structure Study on Selected psychological variables among junior I-league players".

### 1.2 OBJECTIVES OF THE STUDY

The study will objective with following ways:

1. To identify the prominent factor in self-efficacy among junior level I-league players.

2. To identify the prominent factor in mental toughness among junior level I-league players.
3. To identify the prominent factor in self-efficacy and mental toughness among junior level I-league players.

### 1.3 RESEARCH HYPOTHESIS

1. There will not be any prominent factors on Self-efficacy of junior I-league players.
2. There will not be any prominent factors on Mental Toughness among junior I-league players.
3. There will not be any prominent factors on Sports Self-efficacy and Mental Toughness among junior I-league players.

### 1.4 DELIMITATIONS

1. This study will be delimited to 48 I-league male football players coming the age of 15 years.
2. The study will be delimited to the following variables psychological such as, (1) self-efficacy (2) mental toughness.
3. The study will be delimited in to four junior I-league teams of Kerala.
  - a) Kerala blasters fc
  - b) Gokulam Kerala fc
  - c) FC Kerala
  - d) Parappur fc

### 1.5 LIMITATIONS

1. Questionnaire as a research tool has its limitations. As such, any bias that might have had crept into the subject response on this account may be considered as a limitation of this study
2. Players perception towards own behavior might have been different, hence, it was considered as another limitation of this study.

## 2. METHODS AND MATERIALS

### 2.1 SELECTION OF SUBJECTS

The participants of the study include 48 junior male (N=48) football players and the age is coming under 15 years randomly selected among under 15 players how played in the I league

tournament. The subject's age under 15 years as per their school records. The selected subjects are given questionnaire and explain each questions in their local language.

### SELECTION OF VARIABLES

The variables selected for this particular study are as follows

#### 1. Mental toughness (Alan Goldberg-1995)

1. Rebound ability
2. Ability to handle pressure
3. Concentration ability
4. Level of confidence
5. Motivation

#### 2. Self-efficacy (Bandura-1997)

1. Academic self-efficacy
2. Social self-efficacy
3. Emotional self-efficacy

### 2.3 STATISTICAL TECHNIQUES

Descriptive profile and factor structure is used for the statistical analysis. The statistical procedure such as mean, median, mode, standard Deviation, skewness, kurtosis. The hypothesis was tested at significant level of 0.05. Factor analyses were used to obtain the dominant nature of the variable.

### 3. ANALYSIS OF THE DATA AND RESULT OF THE STUDY

#### 3.1 Descriptive analysis

**TABLE-1**  
**Descriptive statistics of Self-efficacy variables**

		Academic Self- Efficacy	Social Self- Efficacy	Emotional Self-Efficacy
N		48	48	48
Mean		20.69	21.15	23.63
Std. Error of Mean		.395	.532	.369
Median		20.00	20.50	24.00
Mode		19	16	25
Std. Deviation		2.738	3.684	2.557
Variance		7.496	13.574	6.537
Skewness		1.193	.108	-.135
Std. Error of Skewness		.343	.343	.343
Kurtosis		.415	-1.069	-.786
Std. Error of Kurtosis		.674	.674	.674
Range		9	12	10
Minimum		18	16	19
Maximum		27	28	29
Sum		993	1015	1134
Percentiles	25	19.00	19.00	21.00
	50	20.00	20.50	24.00
	75	21.00	24.00	25.00

**TABLE-2**

**Descriptive statistics of mental toughness variables**

	Rebound ability	Ability to handle pressure	Concentration ability	Level of confidence	Motivation
N	48	48	48	48	48
Mean	20.65	22.77	23.81	22.38	28.63
Std. Error of Mean	.269	.349	.320	.297	.591
Median	20.00	22.00	23.00	22.00	29.00
Mode	20	22	23	21	26
Std. Deviation	1.862	2.417	2.218	2.059	4.098

Variance		3.468	5.840	4.922	4.239	16.793
Skewness		1.823	.148	-.351	.370	-.489
Std. Error of Skewness		.343	.343	.343	.343	.343
Kurtosis		2.309	-1.287	-.356	-1.363	-.250
Std. Error of Kurtosis		.674	.674	.674	.674	.674
Range		7	8	8	7	17
Minimum		19	19	19	19	19
Maximum		26	27	27	26	36
Sum		991	1093	1143	1074	1374
Percentiles	25	20.00	20.25	23.00	21.00	26.00
	50	20.00	22.00	23.00	22.00	29.00
	75	20.00	25.00	25.00	25.00	32.00

### 3.2 Factor Analysis

**TABLE-3**

**Correlation Matrix of Self-efficacy variables**

Correlation Matrix				
		Academic Self-Efficacy	Social Self-Efficacy	Emotional Self-Efficacy
	Academic Self- Efficacy	1.000	.399	.117
	Social Self- Efficacy	.399	1.000	.004
	Emotional Self- Efficacy	.117	.004	1.000

**TABLE-4**

**Principal component analysis of Self-efficacy variables with factor loadings**

Component Matrix	
	Component 1
	Factor loadings
ACADEMIC SELF- EFFICACY	<b>.841</b>
SOCIAL SELF- EFFICACY	<b>.807</b>
EMOTIONAL SELF- EFFICACY	.242

Extraction Method: Principal Component Analysis.

Only one component is extracted, rotation of the factor is not possible

**TABLE-5**

Total Variance Explained						
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	1.417	47.225	47.225	1.417	47.225	47.225

**TABLE-6**

**Factor one of the Self-efficacy variables**

Item No	Name of the Variable	Factor loadings
1	Academic self-efficacy	.841
2	Social self-efficacy	.807

Factor one of Self-efficacy variables of I-League players was characterized in to two variables. Since the **Academic self-efficacy** and **Social self-efficacy** were heavily loaded items, this factor could be called as Efficacy factor. This account for 47.25% of the total common factor accounted.

**TABLE-7**

**Correlation Matrix of Mental toughness**

Correlation Matrix						
		Rebound ability	Ability to handle pressure	Concentration ability	Level of confidence	Motivation
Correlation	Rebound ability	<b>1.000</b>	.246	.231	.219	.334
	Ability to handle pressure	.246	<b>1.000</b>	.547	.013	.522
	Concentration ability	.231	.547	<b>1.000</b>	.197	.170
	Level of confidence	.219	.013	.197	<b>1.000</b>	.262
	Motivation	.334	.522	.170	.262	<b>1.000</b>

**TABLE-8**

**Principal component analysis of mental toughness variables**

(Un-rotated factor loadings)

<b>Component Matrix</b>		
	Component	
	1	2
REBOUND ABILITY	.598	.332
ABILITY TO HANDLE PRESSURE	.791	-.480
CONCENTRATION ABILITY	.679	-.323
LEVEL OF CONFIDENCE	.408	.765
MOTIVATION	.730	.122
Extraction Method: Principal Component Analysis.		

**TABLE-9**

**Principal component analysis of mental toughness variables**

(varimax solution)

<b>Rotated Component Matrix</b>		
	Component	
	1	2
REBOUND ABILITY	.308	<b>.611</b>
ABILITY TO HANDLE PRESSURE	<b>.924</b>	.049
CONCENTRATION ABILITY	<b>.743</b>	.115
LEVEL OF CONFIDENCE	-.093	<b>.862</b>
MOTIVATION	.535	.511

Component	Eigen value	% of variance
<b>1</b>	<b>2.144</b>	<b>42.870</b>
<b>2</b>	<b>1.045</b>	<b>20.894</b>

**TABLE-10****Factor one of the mental toughness of I-League players**

Item No	Name of the variable	Factor loadings
1	Ability to handle pressure	.924
2	Concentration ability	.743

Factor one of the mental toughness of I-League players was characterised in to two variables such as **Ability to handle pressure** and **Concentration ability**. Since the **Ability to handle pressure** is loaded heavily this factor can be called as **Pressure factor** which accounts 42.87% of common factor.

**TABLE-11****Factor two of the mental toughness of I-League players**

Item No	Name of the variable	Factor loading
1	Level of confidence	.862
2	Rebound ability	.611

Factor two of the mental toughness of I-League players characterised in to two variables such as **Level of confidence** and **Rebound ability**. Since the variable **Level of confidence** is loaded heavily the factor can be named as **confidence factor** which accounts

20.89% of common factor.

**TABLE-12**

**Analysis of both the mental toughness and Self-efficacy variables**

**Correlation Matrix of Self-efficacy and mental toughness variables**

	REBOUND ABILITY	ABILITY TO HANDLE PRESSURE	CONCENTRATION ABILITY	LEVEL OF CONFIDENCE	MOTIVATION	ACADEMIC SELF- EFFICACY	SOCIAL SELF- EFFICACY	EMOTIONAL SELF- EFFICACY
REBOUND ABILITY	<b>1000</b>	.246	.231	.219	.334	-.085	-.225	.258
ABILITY TO HANDLE PRESSURE	.246	<b>1000</b>	.547	.013	.522	-.198	-.156	.423
CONCENTRATION ABILITY	.231	.547	<b>1000</b>	.197	.170	-.136	-.286	.569
LEVEL OF CONFIDENCE	.219	.013	.197	<b>1000</b>	.262	.274	.212	.193
MOTIVATION	.334	.522	.170	.262	<b>1000</b>	.033	-.181	.248
ACADEMIC SELF- EFFICACY	-.085	-.198	-.136	.274	.033	<b>1000</b>	.399	.177
SOCIAL SELF- EFFICACY	-.225	-.156	-.286	.212	-.181	.399	<b>1000</b>	.004
EMOTIONAL SELF-EFFICACY	.258	.423	.569	.193	.248	.177	.004	<b>1000</b>



**TABLE-13**

**Principal component analysis of both self-efficacy and mental toughness variables**  
(Un-rotated factor loadings)

<b>Component Matrix</b>			
	Component		
	1	2	3
REBOUND ABILITY	.564	.011	-.328
ABILITY TO HANDLE PRESSURE	.763	-.117	.366
CONCENTRATION ABILITY	.754	-.051	.286
LEVEL OF CONFIDENCE	.375	.476	-.620
MOTIVATION	.632	.156	-.185
ACADEMIC SELF EFFICACY	-.164	.891	-.035
SOCIAL SELF EFFICACY	-.432	.545	.521
EMOTIONAL SELF EFFICACY	.665	.340	.390

**TABLE-14**

**Principal component analysis of both self-efficacy and mental toughness variables**  
(Varimax solution)

<b>Rotated Component Matrix</b>			
	Component		
	1	2	3
REBOUND ABILITY	.275	.551	-.214
ABILITY TO HANDLE PRESSURE	<b>.826</b>	.068	-.205
CONCENTRATION ABILITY	<b>.777</b>	.148	-.163
LEVEL OF CONFIDENCE	-.017	<b>.845</b>	.194
MOTIVATION	.421	.526	-.059
ACADEMIC SELF EFFICACY	-.099	.256	<b>.864</b>

SOCIAL SELF EFFICACY	-.022	-.439	<b>.750</b>
EMOTIONAL SELF EFFICACY	<b>.788</b>	.159	.251

**TABLE-15**

Total variance explained			
Components	1	2	3
Eigen value	<b>2.662</b>	<b>1.474</b>	<b>1.168</b>
% of variance	<b>33.273</b>	<b>18.419</b>	<b>14.594</b>
Cum variance	<b>33.273</b>	<b>51.692</b>	<b>66.286</b>

**TABLE-16**

**Factor one of both Self-efficacy and mental toughness variables after rotated factor Loadings**

(Varimax solution)

Item No	Name of the variable	Factor loadings
1	ABILITY TO HANDLE PRESSURE	<b>.826</b>
2	EMOTIONAL SELF-EFFICACY	<b>.788</b>
3	CONCENTRATION ABILITY	<b>.777</b>

Factor one of both Self-efficacy and Mental toughness of I-League players characterised in to three variables and variable ABILITY TO HANDLE PRESSURE loaded heavily so this factor is called as PRESSURE FACTOR which accounts % of 33.27 of all common factors.

**TABLE-17**

**Factor two of both Self-efficacy and mental toughness variables after rotated factor Loadings**

(Varimax solution)

Item No	Name of the variable	Factor loading
1	Level of confidence	<b>.845</b>

Factor two of both Self-efficacy and Mental toughness of I-League players characterised in to one variable and variable **Level of confidence** which was heavily loaded, .845 and it is called as confidence factor.

Which accounts 18.42% of common factor.

**TABLE-18****Factor three of both Self-efficacy and mental toughness variables after rotated factor Loadings**

(Varimax solution)

Item No	Name of the variable	Factor loading
1	ACCADAMIC SELF EFFICACY	<b>.864</b>
2	SOCIAL SELF EFFICACY	<b>.750</b>

Factor three of both Self-efficacy and Mental toughness of I-League players characterised in to two variables and variable ACADEMIC SELF EFFICACY was heavily loaded, **.864** and this factor so called as **Academic factor** which accounts 14.59 of all common factors.

**3.3 DISCUSSIONS OF FINDINGS****Graphical Comparative Analysis**

While considering the mean comparison value of Self-efficacy of I-League football players the Emotional self-efficacy is the highest mean score compare to other Self-efficacy variables because the emotions are expressed and controlled throughout match period because of the level of professionalism. Considering Mental Toughness of I-League football players, the Motivational factors was the highest mean score compare to other Mental Toughness variables because the motivational factors are led the players to their highest level of achievement.

**Factor Analysis**

While considering the factor analysis of Self-efficacy of I-League player's one factor was loaded and because of the awareness for a game player clearly shows the result as combinations of Academic self-efficacy and Social self-efficacy. All the players should have a good interaction between each during match as well as in training sessions between team management, coach and match officials. Players should keep academic efficacy in training session to cope up with match standards and should be able to give respect to opposition too.

The Mental toughness variables of south Indian Santhosh trophy teams were very high level in ability to handle pressure and concentration ability because the coaches applied various strategies and team line up according to the level of opposite team and

execute it repeatedly to handle pressure and to concentrate in the match period. The level of confidence and rebound ability in between the players and supporting staff of both team leads to highest achievement in professional match like I-League competition. The concentration factor is mainly depending upon the strict time table of coaches and assistant coaches in outside the field. That leads the team in well planned preparation for the each and every matches.

Analysis of both Self-efficacy and Mental toughness shows that the ability to handle pressure, concentration ability and emotional self-efficacy highly because of the build in strategies, planning and mental training whole includes so as to concentrate throughout a year for each player without disturbed by a foreign element and they easily achieve their goals by holding their nerves at crucial situations. Level of confidence always demands in huge competition like I-League for players so to attain their goals each and every player in team needs to build and to make happen in every match with the help of coach and other supporting staff.

**3.4 DISCUSSION OF HYPOTHESIS**

1. The hypothesis number one is rejected as prominent Self-efficacy variables were identified among I-League football players.
2. The hypothesis number two is rejected as prominent mental toughness variables were identified among I-League football players.
3. The hypothesis number three is rejected as prominent Self-efficacy variables and mental toughness variables were identified among I-League football players.

**4. CONCLUSIONS**

1. The mean comparison value of Self-efficacy of I-League football players the emotional self-efficacy

is the highest mean score compare to other Self-efficacy variables among I-League football players.

2. The Mental Toughness of I-League football players the Motivational factors was the highest mean score compare to other Mental Toughness variables among I-League football players.
3. There are more prominent Self-efficacy variables contributing to the performance of I-League football players.
4. There are more prominent Mental Toughness variables contributing to the performance of I-League football players.
5. There are more prominent Mental Toughness and Self-efficacy variables contributing to the performance of I-League football players.

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