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# Determine the validity and reliability of a trait measure of robustness of self-confidence in sport

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## ABSTRACT

*Robustness of self- confidence beliefs (the ability to maintain confidence beliefs in the face of adversity) have been highlighted as an important characteristic that contributes to the make up of mentally tough athletes. The purpose of the present set of studies was to validity and reliability of a trait measure of robustness of self-confidence in sport. beginning, for Validity questionnaires of robustness of self- confidence in the sports competition, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were used. Cronbach's alpha method to evaluate the internal consistency and coefficient reliability and test-retest (espearman and Pearson correlations coefficient formula) and split half methods to confirm stability of the questionnaire was used. Results showed that the Cronbach's alpha reliability coefficient of the questionnaire Robustness of self- confidence is 0/731 and In terms of reliability is acceptable. Resultis support that the trait measure of robustness of self-confidence can be used.*

**Key words:** validity , reliability , inventory, robustness of self- confidence

## INTRODUCTION

Confidence is the most common characteristic that distinguishes more and less successful athletes [19]. Self-confidence reflects the degree of certainty that an athlete has about their ability to successfully perform sport skills [17]. Research has demonstrated self-confidence to be one of the most influential cognitive determinants of athletic performance [7]. Self-confidence is the belief in ability by an athlete to perform at high standards. Professional athletes show confidence in many different ways. If an athlete who is unproven attempts to act the same way, they may be considered overconfident. Athletes who performed great in college and fail in the professionals may be suffering from lack of confidence. Confidence is not something we are born with, but can be developed with practice. The belief in oneself to be successful leads to the athlete actually being successful. Confidence is like a riot, it starts with a person or two and when others get involved it can grow and becomes something unstoppable. If athletes are able to perform as a team and maintain confidence, they are able to defy the odds and be successful. Having the mentality that "I can do this, and nothing you do can stop me" is what it takes to succeed [11]. Stuart Beattie says "robust self-confidence beliefs have been linked to aspects of mental toughness e.g.,[5,12]. Bull et al.(2005) reported that 'resilient' self-confidence (a type of confidence that is hard to undermine) and 'robust' self-confidence (overcoming self-doubts, "feeding" off physical preparation, and maintaining self-focus) were characteristics of mental toughness reported by elite English cricketers. Further, having an unshakeable sense of self-belief and bouncing back from adversity has also been reported to be an important characteristic of professional athletes [9,13]. Bandura(1977) proposed that efficacy beliefs vary on three dimensions that have important performance implications, namely, level, generality, and strength. Level of self-efficacy refers to the amount of task demands that performers believe they are capable of meeting. Generality of self-efficacy refers to the degree to which personal efficacy beliefs might be generalized across a range of tasks or situations. Finally, strength of self-efficacy refers to the extent to which self-efficacy beliefs can be maintained in the face of obstacles and

disconfirming experiences; for example, Bandura (1997) stated, “weak efficacy beliefs are easily negated by disconfirming experiences, whereas people who have a tenacious belief in their capabilities will persevere in their efforts despite innumerable difficulties and obstacles” (p. 43). Bandura’s standard methodology for measuring self-efficacy is to first ask individuals to rate the level of a task demand that they believe they are able to meet. By having (say) 10 levels of task demand, this method provides a measure of level of self-efficacy. To measure strength of self-efficacy, Bandura typically asks individuals to rate ‘the strength of their beliefs on a 100 point scale, ranging in 10-unit intervals from 0 (“Cannot do”); through intermediate degrees of assurance, 50 (“Moderately certain can do”); to complete assurance, 100 (“Certain can do”)] [3]. Strength scores are usually summed and divided by the total number of items. Generality of efficacy is usually dealt with by developing different scales for different tasks and/or situations. Lee and Bobko (1994) demonstrated that larger effect sizes are obtained from using a combined measure of Bandura’s level and strength, than from using either dimension separately, thereby confirming that strength of efficacy (as measured by Bandura’s standard methodology) is an important contributor to self-efficacy effects. Bandura (1977, 1986, 1997) has developed an important theory, proposed operationalizations of his constructs, and demonstrated that these operationalizations predict performance (or, more broadly, behavior). Nevertheless, there remains a problem with Bandura’s measurement of efficacy strength with regard to resilience. That is, Bandura measures the levels of certainty that individuals have in their abilities to meet different situational task demands. Although this certainty regarding self-efficacy is undoubtedly related to the ability to maintain efficacy beliefs in the face of disconfirming experiences, Bandura’s measure of self-efficacy does not actually measure this construct. Consequently, there remains a need for a measure of robustness. The present paper aims to bridge this gap. It is likely that the ability to maintain self-confidence despite disconfirming experiences would be a trait-like characteristic i.e., behaviors are stable over time [8]. One other self-confidence model that incorporates trait self-confidence is Vealey’s (1986, pp221-246) model of sport confidence. This model predicts that trait (dispositional) sport confidence and goal orientations (e.g., performance and outcome goals) interact to determine state sport confidence, which in turn influences performance. Vealey’s approach and self-efficacy theory differ however, in that the former works at a fixed level of generality (the sport in which the individual is involved) but do not consider the specificity-generality issue any further. A second important distinction is that Vealey’s approach does not consider robustness of confidence beliefs. Nevertheless, recent qualitative work by Galli and Vealey (2008) has started to explore the nature of resiliency (bouncing back from adversity) in sport. Resiliency, as defined by Galli and Vealey, clearly relates to at least part of Bandura’s notion of efficacy strength e the part concerned with recovery of efficacy after its loss. Further, Galli and Vealey’s work does not consider the other half of Bandura’s notion of efficacy strength e the ability to maintain efficacy levels in the face of disconfirming experiences. In light of the above discussion, the present authors contend that an important lacuna in the literature is a valid measure of the robustness of self-confidence. As well as having been shown to be an important component of mental toughness [6,12], robustness of self-confidence may contribute to performance over and above the contribution of level of self-confidence [3]”. Although a vast amount of research has examined how confidence is developed and its relationship with a host of behavioral outcomes [3], an athlete’s ability to maintain self-confidence beliefs (i.e., robust beliefs) through difficult and sometimes disconfirming experiences, has received limited research, Beattie Stuart *et al* (2010) conducted study to the development and validation of a trait measure of robustness of self-confidence on the make-up of mentally tough athletes the purpose of the present set of studies was to develop such a measure the ability to maintain confidence in the face of disconfirming experiences. The present paper presents a series of studies reporting the validity and reliability of a trait measure of robustness of self-confidence in sport for use in competitive settings.

## MATERIALS AND METHODS

The present study addresses the reliability and validity of a trait measure of robustness of self-confidence in the sport. Since the current study is descriptive and is the most appropriate trait measure of the questionnaire. Therefore 12-item questionnaire of robustness of self-confidence in the sport was used. the Population, consists of all male and female students participants in the 11<sup>th</sup> sport Olympiad of the students of the whole country’s universities in 2012, including 1600 students according to the statistics of the ministry of science’s the department of physical education. 365 students (176 male, 178 female) were selected randomly by using available sampling as sample size. Descriptive and inferential statistics were used to data analysis. The parameters such as central tendency (mean) and distribution size (variance) were surveyed in the descriptive statistics section. In inferential statistics, first The Exploratory Factor Analysis was used to the construct’s validity and factorial evaluation. Then Confirmatory factor analysis (CFA) was used for validity of the questionnaire of robustness of self-confidence in sports competitions. Cronbach Alpha method was used to examine internal consistency and reliability coefficient of the questionnaire as well as test retest (using Spearman and Pearson correlation coefficients formula) to confirm the stability of questionnaire. The significance level for all analyzes was considered 0.05. SPSS and LISREL software was used to data analysis.

## RESULTS AND DISCUSSION

The first assumption to factor analysis is called Missing minimum. These data, which also refers to the missing data, can damage the factor analysis process. Therefore, two methods were used in the process of coping with Missing data and the number 0.02 was considered. Thus, if a participant left more than 0.02 questions unanswered, was excluded from the research process.

In this section, no subjects were excluded from the analysis and through the assumption of factor analysis entitled the least Missing (0.02) was considered in all subjects. This procedure was applied to every single question and their uncertainty coefficient was determined with respect to their responsiveness and it was clear that all the questions have a high explicit coefficient, so that uncertainty coefficient of all questions was less than 0.02.

The second assumption of factor analysis addresses the adequate sample size. When the KMO index is less than 0.80, we cannot refer to the results of factor analysis. In other words, when KMO is between 0.80 to 0.90, it can be said that KMO is indicative of adequate sample size. In this study, the following table also represents the KMO measure and its interpretation in the area of the adequacy of the sample size.

**Table 1: adequacy of the sample size**

KMO Value	Interpretation
0.831	Adequate sample size is ideally suited

Third assumption of factor analysis is known as multivariate normal distribution. In multivariate distributions, the characteristic of normality have been interpreted in other way, and the term "Krowitz" is mentioned. Krowitz, known as normality of multivariate distribution or normality of covariance matrix, on its own does not make sense and to in order to identify Krowitz, we should emphasis on the mathematical distribution of chi-square approximation.

Interpretation of Krowitz is done in the chi-square approximation and its significance is indicative of Krowitz. Bartlett's test is one of the most reliable tests in identifying the Krowitz which is used in the analysis process with emphasis on chi-square approximation. The table below shows the situation of the multivariate normal distribution.

**Table 2: Evaluation of sphericity**

Krowitz test	chi-square approximation	df	Sig
Bartlets test	958.180	66	0.001

The fourth assumption of factor analysis is the identification of shared values. Thus the correlation of each question to whole test should reflect internal heterogeneity within the questions, means that any question should have common shares with whole test. When each question has a common share less than 0.4, it is necessary to exclude that question of the overall factor analysis and to remove from the total scale. The following table represents shared values, therefore first column indicates the number of questions and the second column represents rates of extraction (shared rate or Loading Scale).

**Table 3: Communalities**

Questions	Initial	Extraction
Q 1	1.000	0.389
Q 2	1.000	0.524
Q 3	1.000	0.480
Q 4	1.000	0.215
Q 5	1.000	0.419
Q 6	1.000	0.712
Q 7	1.000	0.479
Q 8	1.000	0.618
Q 9	1.000	0.638
Q 10	1.000	0.613
Q 11	1.000	0.590
Q 12	1.000	0.697

*Extraction Method: Principal Component Analysis.*

Therefore, considering that the entire Loading Scale or shared coefficients of questions with scales is not more than 0/4, the first questions with Factors Loading (0.389) and fourth with Factors Loading (0.215) are removed and other questions are considered. Indeed, the questions 6,8,9,10 and 12 have the highest factor loading and the first and fourth questions has the lowest factor loading. Thus, the first assumption (minimum Missing at less than 0.02 in each subject), the second assumption (adequate sample size), the third assumption (obtain the multivariate normal

distribution or Krowitz) and the fourth assumption (shared value of each items with whole test more than 0.4) and these assumptions are indicative of performing factor analysis.

The fifth assumption of factor analysis is the explained variances greater than 0.40. Thus, in the process of factor extraction, with emphasis on the 12 items, the minimum explained variances must be 0.40, When explained variances is more than 0.80, the desired psychometric conditions is done in the areas of factor extraction and decreasing process of 12 questions to the fundamental factors have been carried out precisely. The table below represents the explained variance that by reference to the sum of the squared factor loadings associated with the factor is related to the proportion of each factor in the explained variance of whole scale. It should be noted that from the left, the first column represents the number of elements, the second column represents specific value, and the third column represents the proportion of variance rate or contribution of each factor and the fourth column represents the explained shared variance.

**Table 4: the amount of variance rate for each factor**

Component	Initial Eigenvalues		
	Total	% of Variance	Cumulative %
1	3.790	31.586	31.586
2	1.497	12.475	44.061
3	1.088	9.064	53.125

Since eigenvalue is defined by sum of factor loadings, we should consider identifying the main factors. It should be noted that the number of eigenvalue greater than 1 digit is indicative of basic factor, but in personality tests, eigenvalue has always been considered greater than 2 and in ability tests (such as academic achievement and intelligence tests), eigenvalue has been considered more than 1.5 criterion.

**Table 5- the amount of variance explained by each factor (with rotation)**

Component	Total Variance Explained								
	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.790	31.586	31.586	3.790	31.586	31.586	2.344	19.534	19.534
2	1.497	12.475	44.061	1.497	12.475	44.061	2.208	18.404	37.937
3	1.088	9.064	53.125	1.088	9.064	53.125	1.823	15.188	53.125
4	.937	7.809	60.934						
5	.839	6.995	67.929						
6	.726	6.052	73.980						
7	.688	5.730	79.710						
8	.612	5.103	84.813						
9	.547	4.557	89.370						
10	.480	4.001	93.372						
11	.428	3.566	96.937						
12	.368	3.063	100.000						

*Extraction Method: Principal Component Analysis.*

**Table 6- Rotated component matrix**

	Component Matrix <sup>a</sup>		
	Component		
	1	2	3
Q 2	.551	-.171	-.531
Q 3	.566		-.461
Q 5	.531	.342	-.191
Q 6	.452	.716	
Q 7	.673	-.112	.191
Q 8	.728	-.281	-.205
Q 9	.722	-.305	.219
Q 10	.728	-.169	.234
Q 11	.473	-.170	.566
Q 12	.383	.751	.138

*Extraction Method: Principal Component Analysis.*  
*a. 3 components extracted.*

With reference to the explained variance table and refer to column of Initial Eigenvalues(three left column) and square sum of extracted factor loadings (middle three columns), it can be cited that at least three factor is extracted that among them, the first factor has high explained variance. Therefore, it is recommended that aforesaid scale can

be considered only as a factor. However in the case of tendency to factor analysis, the questions are discussed in a component matrix with emphasis on extracting way of main elements after precise evaluation of table of component matrix. The rotation method is used to determine factor loadings on each question, with the emphasis on each question in one of the three factors. Since Exploratory Factor Analysis and Principal Component (PC) of extracted factors has been used in this study, the rotation method of maximum dispersal (Varimax) is applied.

Finally, it was clear that 3 factors have been extracted from the rotation factor analysis, and in fact robustness of self-confidence consists of the three factors that are as follow respectively: factors affecting self-confidence, stability of self-confidence, return of self-confidence.

So, with emphasis on triplet factors of self-confidence's robustness, the questions related to each index are respectively summarized in the following table.

**Table 7: Structural Analysis of robustness of self- confidence in the sport**

factors	Index	Questions
Factor 1	factors affecting self-confidence	7,10,11,9
Factor 2	stability of self-confidence	8,3,2
Factor 3	return of self-confidence	5,6,12

After performing process related to explanatory factor analysis, it is essential to survey the correlation coefficient obtained from the relationship between the robustness of self confidence in sport. Following table represents the obtained confident in order to determine the concurrent validity.

**Table 8: Pearson's correlation coefficient for the relationship between "TROSCI" and "TSCI"**

	Pearson correlation	Correlation direction	significant
TROSCI	0.987**	Direct and positive	0.001

According to the table above and with emphasis on the rate of obtained correlation coefficient that is significant in the level of  $\alpha = 0.05$ , it can be said that there is a positive relationship between «TROSCI» and «TSCI» variables. Therefore it can be said that concurrent validity of questionnaire of the robustness of self-confidence in sports is confirmed. After evaluating the validity of the questionnaire of the robustness of self-confidence in sport through two construct or factor validity or concurrent validity, it is essential to examine the coefficient value of questionnaire using Crinbach's alpha and then test-retest method.

**Table 9: Cronbach's alpha Coefficients associated with scale "TROSCI" to evaluate the internal congruence**

Factor	Cronbach's alpha Coefficients
factors affecting self-confidence	0.735
stability of self-confidence	0.655
return of self-confidence	0.845
Robustness of self-confidence	0.731

**Table 10: test-retest Coefficients associated with scale "TROSCI" to evaluate the consistency- the espearman**

factor	Test-retest Coefficients	Sig
factors affecting self-confidence	0.914**	0.000
stability of self-confidence	0.911**	0.000
return of self-confidence	0.982**	0.000
Robustness of self-confidence	0.970**	0.000

**Table 11: test-retest Coefficients associated with scale "TROSCI" to evaluate the consistency- the pearson**

Factor	Test-retest Coefficients	sig
factors affecting self-confidence	0.926**	0.000
stability of self-confidence	0.939**	0.000
return of self-confidence	0.972**	0.000
Robustness of self-confidence	0.975**	0.000

According to the table, it can be said that the subscale "second factor" has the lowest level of validity coefficient. Also the subscale "the first" and "third factor" has desirable validity coefficient, and finally the subscale "the robustness of self-confidence" has desirable validity coefficient.



According to table and with emphasis on the correlation coefficients obtained between two test and retest stages that are significant in level of  $\alpha= 0.01$  ,it can be said that the questionnaire used in the present paper has validity and stability in each three subscales and as a whole.

### Presenting a conceptual model of robustness of self-confidence

#### Confirmatory factor analysis

In this section, the results of confirmatory factor analysis of research's variables have been provided by LISREL software. In Confirmatory factor analysis, researcher knows to which dimension each question relates to. Means that in the confirmatory factor analysis, there is a conceptual model for each of the concepts or variables of the research. To survey each of the models, the basic question is that whether these measurement models are appropriate? In other words, do the research data are consistent with conceptual model or not?

There are generally two types of index to test the validity model. 1 –Goodness indexes and 2- badness indexes. Goodness indexes includes AGFI, AGFI, NFI and ... that their higher measure is better. The recommended value for such parameters is 0/9. Badness indexes also include  $df / 2\chi$  and RMSEA that when their value be less, the model has better process. Extent permitted of  $df / 2\chi$  is 3 and extent permitted to RMSEA is 0.08. To answer the question of model processing, indexes of goodness and badness should be considered ( $df / 2\chi$ , RMSEA).

#### A survey of goodness of model fitness

clearly, LISREL software provides a set of indicators to measure the goodness of model fitness. All of the above mentioned parameters are examined. Chi-square index ( $2\chi$ ) indicates the rate of chi-square statistic for the model. In fact, this index indicates the difference between the models and is a criterion for badness of model. So the less its rate indicates the lower difference between the variance - covariance adopted sample and the variance – covariance matrix taken from given model and shows unfitness of model. Of course It should be noted that rate of this index is affected by number of given sample. In fact, when the sample size is more than 200, this index has great tendency to increase. Therefore, analyzing the fitness of the model with this parameter is typically reliable between 100 and 200 samples. It is better to survey this index taking into account the degrees of freedom.

The degree of freedom (df): This index indicates the degree of model freedom and should not be less than zero.

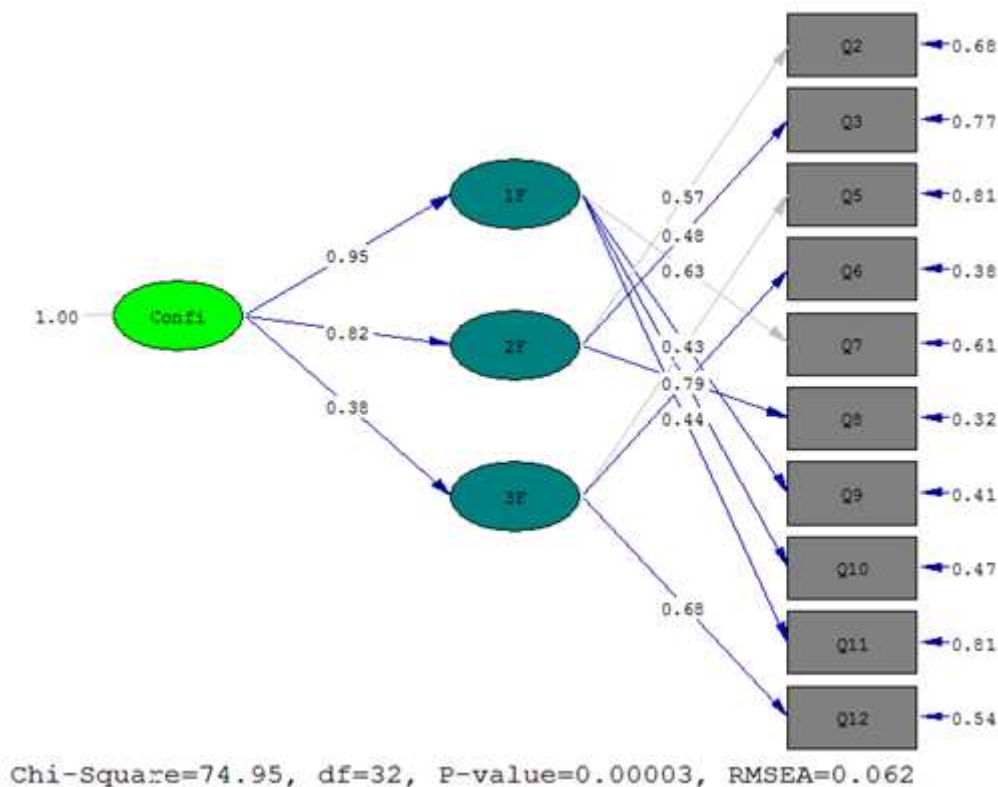
Degree of chi-square to the freedom degree ( $\chi^2 / df$ ): one of the best indicators of goodness of model fitness is to survey the chi-square statistic to the degree of freedom. However, there is no standard for the suitability of this index. But many scientists believe that this index should be less than 3. Finally the appropriate extent and type of research should be determined with the recognition of researcher and according to the type of model.

P-Value Index: this index is also another criterion for assessing the suitability of the model. But regard to credibility of this index, there is no consensus. Some statistical scholars believe that its rate must be less than 0.05 while others emphasize on the higher rate. Square mean index of model errors (RMSEA): this model has been made based on errors of the model and such as chi-square index, is a benchmark for bad model. Some scholars believe that this index should be less than 0.05, as well as others believes that the rate less than 0.08 is appropriate.

**Table 12: goodness of model fitness**

Goodness of fit statistics	value
(Chi-Square)	74.95
Df	32
RMSEA	0.062
P- value	0.00003

Chi-square test shows the differences between observed and expected covariance matrix and according to the above model can be observed that Chi-square value for the model with 32 degree of freedom equal to 95.74 which is statistically significant. Since its significance level is relatively less than  $P=0.061$ , It can be concluded that the chi-square test of precise fitting of the model confirms the observed data due to the fact that when the chi-square value is close to zero, is indicative of quantitative differences between expected and observed covariance. In fact, when the chi-square is close to zero, the probability value P-value is greater than 0.05 and this represents a good fit of the model.



**Fig. 1: Factor loadings and error terms for the single-factor CFA of TROSCI**

**Table 13: Path coefficient of conceptual model of questions**

Row	Questions	T value	error	Factors Loading
1	Q2	11.54	0.68	0.57
2	Q3	12.17	0.77	0.48
3	Q5	12.12	0.81	0.43
4	Q6	4.50	0.38	0.79
5	Q7	11.25	0.61	0.63
6	Q8	5.34	0.32	0.82
7	Q9	8.73	0.41	0.77
8	Q10	9.63	0.47	0.47
9	Q11	12.53	0.81	0.44
10	Q12	7.59	0.54	0.68

T-statistic values in the above table shows the values of the test statistic for each coefficient. Here, for each parameter in the model an observed value of T, is obtained. The results can be interpreted so that since the observed T in the level of alpha 5 hundredths with 95 percent confidence is significant means that given relationship is significant since the P-value is less than 5 hundredths. Consequently it can be said that questions have capability of measuring the robustness variable of self-confidence in sport. In fact it was shown that rate of efficacy of the second question in order to determine the robustness of self-confidence variable in sport is 0.57, the third question 0.48, fifth question 0.43, sixth question 0.79, seventh question 0.63, eighth question 0.82, ninth question 0.47, eleventh question 0.44, twelfth question 0.68. In fact 42.2% of variance associated with self-confidence variable in sport is defined by the questions on the questionnaire and 57.8% by other variables, regard to the level of t-test, it was shown that this level of efficacy is significant on the alpha level of 5 hundredths.

**Table 14: Path coefficient of conceptual model of factors**

Row	Factors	T value	factors Loading
1	Factor 1	7.81	0.95
2	Factor 2	8.49	0.82
3	Factor 3	4.36	0.38

**CONCLUSION**

12-item questionnaire was used in order to robustness of self-confidence in sport in which 2 items were excluded in the factor validity survey process.

First, factor analysis was used to assess the validity of the method. It was found that there are three factors in the questionnaire of the robustness of self-confidence in sport. These factors were as follow: the factors affecting on self-confidence, stability of self-confidence and return of self-confidence.

With emphasis on analysis related to the validity, the measurement index of the robustness of self-confidence is of great validity in sport and its reliability coefficient is 0.73. Also, each of the factors associated with self-confidence has high reliability coefficients and the factors influencing self-confidence, self-confidence stability and return of self-confidence are respectively 0.73, 0.65 and 0.85. It is worth mentioning that the reliability coefficient of the questionnaire of the robustness of self-confidence in sport is confirmed by using test-retest and the digit of 0.97 is indicative of desirable reliability coefficient.

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## Appendix

Trait Robustness of Sport- Confidence Inventory  
(TROSCI)

1- Gender: female <input type="checkbox"/> male <input type="checkbox"/>		2- Age ..... year	
3- Degree: PhD <input type="checkbox"/> MA <input type="checkbox"/> bachelor <input type="checkbox"/> diploma <input type="checkbox"/>			
4- Field: Department of Human Sciences <input type="checkbox"/> department of engineering <input type="checkbox"/> department of basic sciences <input type="checkbox"/> medicine <input type="checkbox"/> art <input type="checkbox"/>		5- Marital status: single <input type="checkbox"/> married <input type="checkbox"/>	
6- Sport:.....		<input type="checkbox"/> Duration of competitive sports experience:..... year	
8- Sports officials gained: olympics, asian Games, world, asia <input type="checkbox"/> International <input type="checkbox"/> national <input type="checkbox"/> provincial <input type="checkbox"/> regional <input type="checkbox"/>			
9- Do you already have another job besides being a student: No <input type="checkbox"/> Yes <input type="checkbox"/> , Please specify .....			
10- Championship level : olympics, asian Games, world, asia <input type="checkbox"/> international <input type="checkbox"/> national <input type="checkbox"/> provincial <input type="checkbox"/> regional <input type="checkbox"/>			
11- Email address:.....			

Please read the instructions carefully before responding to the statements. Think about your confidence and how your performance may affect your confidence **generally**. The statements below describe how you may feel **generally** about your confidence, answer each statement by circling the number that corresponds to how strongly you agree or disagree

**generally**. Please try and respond to each item separately. The terms **competition** refers to matches, tournaments or other competitive events. Please answer the items as honestly and accurately as possible there are no right or wrong answers. Your response will be kept confidential.

Row	Questions	Strongly Disagree									Neutral								
		1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
1	A bad result in competition has a very negative effect on my self-confidence	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
2	My self-confidence goes up and down a lot	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
3	Negative feedback from others does not effect my level of self-confidence	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
4	Mistakes have very little effect on my self-confidence	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
5	My self-confidence recovers very quickly after negative feedback from my coach or significant others	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
6	I recovers me self-confidence quickly after a bad result in competition	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
7	If I perform poorly, my confidence is not badly effected	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
8	My self-confidence is stable; it does not very much at all	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
9	My self-confidence is not greatly effected by the outcome of competition	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
10	If I make a mistake it has quite a large detrimental effect on my self-confidence	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
11	My self-confidence remains stable regardless of fluctuationin fitness level	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9
12	I recover my self-confidence very quickly if I make a mistake	1	2	3	4	5	6	7	8	9	1	2	3	4	5	6	7	8	9