Validation of Intensity Dimension of Competitive State Anxiety-2 (Csai-2) Urdu Version

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Abstract

Sports competitions are accompanied by many unpleasant and negative emotions e.g. anxiety. The study aims to search the factorial validity of one of the most influential inventory in sport psychology i.e. Competitive State Anxiety-2 (CSAI-2) in Pakistani context (i.e. Urdu version). The English version of tool was converted into Urdu. Urdu version of CSAI-2 was distributed 30 minutes before the start of the event to a group of randomly selected 310 student athletes between the ages of 19-27 years of different events from Abdul Wali Khan University Mardan & Peshawar University. A comprehensive statistical analysis was performed such as item-to-total correlation, EFA and CFA to find out the factorial validity of the instrument. Based on the results of the current study, a new CSAI-2 (13 items Urdu version) inventory was developed for measuring intensity dimension of competitive state anxiety. It is proposed that the investigators may employ CSAI-2 (Urdu) instead of the CSAI-2 to measure competitive state anxiety in Pakistani athletes.

Key Words: Sports Psychology, Competitive State Anxiety, CSAI-2, Intensity, EFA, CFA.

Introduction

Sentiments are very important in life. Anxiety is one of them which is not pleasant. This has been studies by many researchers of the world. Some call it pain while other call it incongruity between wants and gratification of these wants (Lazarus, 2000). Anxiety makes depressed an individual. Sometimes when an individual wants to get a thing, and due to some factor he can't achieve, he gets anxiety. This is in reality a difference between one's beliefs of achieving and failure in the achievement (Kelly, 1955). Anxiety is the consequence of a professed menace to the self-thought (Rogers & Walsh, 1959). Pencil-and-paper inventories can be very effective in measuring behavioral and psychological assessment and are also has paramount importance in the measurement of anxiety (Ostrow, 1996).

Cox (2007) posits that Sports anxiety are of two types i.e. trait and state. It is Uni-dimensional and multi-dimensional. It is measured by Trait Anxiety Inventory (TAI), Sport Competition Anxiety Test (SCAT), Spielberger's State Anxiety Inventory (SAI) Competitive

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State Anxiety Inventory (CSAI) Cognitive Somatic Anxiety Questionnaire (CSAQ), Sport Anxiety Scale (SAS), Activation-Deactivation Checklist (AD-ACL) Revised Competitive State Anxiety-2(CSAI-2R).

The investigators took keen interest in the study of sports pre-competitive state anxiety. Theoretical foundation was given by Martens, Vealey and Burton (1990). This theory highlighted the impact of somatic and cognitive anxieties; and poise on athletic enactment. Competitive State Anxiety Inventory (CSAI-2) developed by Martens et al., (1990) was regarded the best tool to measure multi-dimensional competitive state anxiety, as it not difficult in the administration as compared to other scales in athletic races. Conversely, some investigators have different opinions and they even challenged the factorial accuracy of the scale (Fernandes, Vasconcelos-Raposo, & Fernandes, 2013). Cox, Martens, and Russell (2003) posit that the factorial soundness of the scale needs fine-tuning. Although this scale has been employed by the investigators in many parts of the world according to their own context and with unique translation. Despite its flaws, it contributed well to the domain of applied sports psychology many investigators in different countries have used this inventory in their empirical studies like France (Martinent et al., 2010), Tunisia (Hajji & Elloumi, 2017), Malaysian (Hashim & Zulkifli, 2010; Hashim & Baghepour, 2016).

The Context of Pakistan

Sport psychology in Pakistan progressed well in the field of research. Pakistani context is totally different from other countries, therefore, regarding the societal, traditional, tribal, spiritual, financial, dogmatic, ecological, topographical facets of Pakistan, the scholar considers that there is a crucial necessity of analyzing the issue by arousing awareness for the benefit of researchers, coaches and sports personnel.

Methods and Procedure

The research tool was changed from English in to national language for ease in collecting data. It was validated by experts of English, Urdu and sports psychology. It was refined and finalized after incorporations suggested by these specialists. The tool was distributed 30 minutes before the start of the event to a group of randomly selected 310 student athletes between the ages of 19-27 of different events from Abdul Wali Khan University & Peshawar University. All codal formalities were followed before game beginning.

Techniques

Item-to-total correlation and Cronbach Alpha were used to purify the instrument of CSAI-2 (Urdu version). Accordingly, Cronbach Alpha is used in the current research to settle

the reliability of the statements of CSAI-2 (Urdu version). Secondly, item-to-total correlation was used to purify the instrument of CSAI-2 (Urdu version) by discarding irrelevant items in the instrument. Thus, ensuring the instrument contains only those items which share a common variance (Churchill, 1979). Additionally, EFA was used to further purify the item and to find out the Uni-dimensionality of the CSAI-2 (Urdu). Furthermore, CFA was used to find out the validity of the scale.

Instrument

The converted tool according to Pakistani context was administered. It comprised 27 items. It was categorized into three domains of somatic, cognitive and self. Confidence. Each domain included nine items respectively. The scores for intensity of tool was calculated by figuring a distinct score for each domain, stretching from a low score of nine to a high of thirty six for each one, higher the score, higher the point of sports pre-competitive anxiety and self-assurance. Scoring for item 14 must be reversed counting in calculating the scores for somatic anxiety.

Data Analysis

Scale Purification Process of CSAI-2 (Urdu version)

Scale purification process of CSAI-2 (Urdu version) was performed using the method suggested by Hair et al. (2014). According to this process, Cronbach Alpha and Item-to-Total correlation were used to identify and remove items that are not significant in terms of explanation to CSAI-2 (Urdu version). Furthermore, EFA was used to identify items that are not perfectly loading on their respective constructs, so that one can remove it to make the constructs of CSAI-2 (Urdu version) Uni-dimensional.

Item-to-total correlation and Cronbach alpha values are given in the following table 1.2.

Table 1.2: Reliability analysis of the constructs of CSAI-2 (Urdu version)

Construct	**Intensity**			
	ITC 1st analysis	**α 1st analysis**	**ITC 2nd analysis**	**α 2nd analysis**
Cognitive State Anxiety		**.926**		**.946**
CAI1	.912		.917	
CAI4	.604		.615	
CAI7	.743		.737	
CAI10	.815		.831	
CAI13	.282	Excl*	--	
CAI16	.881		.893	

CAI19	.878		.890	
CAI22	.854		.875	
CAI25	.694		.687	
Somatic State Anxiety		**.946**		**.946**
SAI2	.856		.856	
SAI5	.794		.794	
SAI8	.859		.859	
SAI11	.861		.861	
SAI14	.479		.479	
SAI17	.699		.699	
SAI20	.788		.788	
SAI23	.907		.907	
SAI26	.913		.913	
Self-Confidence		**.932**		**.932**
SCI3	.635		.635	
SCI6	.790		.790	
SCI9	.676		.676	
SCI12	.813		.813	
SCI15	.721		.721	
SCI18	.648		.648	
SCI21	.823		.823	
SCI24	.870		.870	
SCI27	.813		.813	

As can be seen in the above table the Cronbach alpha value of all the constructs of CSAI-2 (Urdu version) for intensity is ranging from .926 to .946 before item-to-total correlation analysis. Although, the values are well above the recommended value of .7 by Hair et al. (2014), however, in order to find out the weak items within these constructs, item-to-total correlation analysis were performed. The results suggest that only one item (i.e. CAI13) was deleted from the CSAI-2 (Urdu version) because of its low item-to-total correlation value (i.e. .282). After the deletion of CAI13, the new Cronbach alpha value of cognitive anxiety (intensity) improves from .926 to .946.

Exploratory Factor Analysis of CSAI-2 (Urdu version)

SPSS version 24 was used to perform EFA analysis after checking the main requirements of EFA: large enough sample size preferably more than 100 (310 in the current

study), strong theoretical support (well established inventory of CSAI-2), and minimum of at-least 5 items per constructs.

The first step in EFA analysis is to ensure that items of different constructs of CSAI-2 (Urdu version) are enough inter-linked to yield descriptive aspects (Hair et al., 2014).In this context, Hair et al. (2014) proposed two statistical tools to examine the factorability of the correlation matrix which are Kaiser-Meyer-Olin (KMO) and Barlett test of Sphericity. Accordingly, a significant Barlett test of Sphericity at $p < .001$ indicates that items of correlated to make factors and thus suitable for EFA analysis. For the purpose of this study, the KMO and Barlett test of Sphericity for all constructs of CSAI-2 (Urdu version) for intensity have higher than recommended values. The results are given in the following table 1.3.

Table 1.3: Results of KMO and Barlett test of Sphericity

Groups	KMO and Bartlett's Test	
Group 1: CSAI-2 (Urdu version) for intensity	Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.863
	Bartlett's Test of Sphericity — Approx. Chi-Square	10373.615
	Df	325
	Sig.	.000

In current EFA, the three-factor structure explains 70.75% accumulative variance which is higher than recommended. The three factor structure also shows high communalities with only one item (i.e. SAI14) have less than the recommended value of .5. However, this item was left to do the further analysis and examine the rotated component matrix.

The following table shows the rotated component matrix, the table clearly shows a three-factor solution for CSAI-2 (Urdu version) inventory. In this regard, CAI1, CAI4, CAI7, CAI10, CAI16, CAI19, CAI22, and CAI25 are highly loading on one factor (i.e. Cognitive state anxiety). The loading of all the items are higher than the suggested threshold of .55 as suggested by Hair et al. (2014). Similarly, somatic anxiety is measured by SAI2, SAI5, SAI8, SAI11, SAI14, SAI17, SAI20, SAI23, and SAI26 and all these items have a high loading of greater than .55. Additionally, self-confidence construct of CSAI-2 (Urdu version) for intensity is characterized by SCI3, SCI6, SCI9, SCI12, SCI15, SCI18, SCI21, SCI24, and SCI27 with a loading of greater than the suggested threshold of .55. As can be seen, none of the items cross load on any other factors. This result further suggests that all the constructs of CSAI-2 (Urdu version) for intensity are well define and are suitable for further analysis.

Table 1.4: Rotated component matrix of CSAI-2 (Urdu version) for intensity

Items/Constructs	Factor 1	Factor 2	Factor 3
Cognitive state Anxiety (Intensity)			
(Cronbach Alpha = 0.946)			
CAI1	.924		
CAI4	.683		
CAI7	.817		
CAI10	.830		
CAI16	.891		
CAI19	.886		
CAI22	.869		
CAI25	.765		
Somatic State Anxiety (Intensity)			
(Cronbach Alpha = 0.946)			
SAI2		.900	
SAI5		.809	
SAI8		.905	
SAI11		.889	
SAI14		.544	
SAI17		.735	
SAI20		.801	
SAI23		.939	
SAI26		.944	
Self-confidence (Intensity)			
(Cronbach Alpha = 0.932)			
SCI3			.681
SCI6			.837
SCI9			.720
SCI12			.849
SCI15			.757
SCI18			.722
SCI21			.852
SCI24			.895
SCI27			.848

Extraction Method: Principal Component Analysis.

Factorial Validity of the CSAI-2 (Urdu version) Using CFA

Considering the arguments listed in literature review, the researcher in the current study believes that proper validation process is required for the translated CSAI-2 (Urdu version) in order to come up with a more psychometrically sound battery than the original

one (i.e. CASI-2). Considering this, factorial validity of the translated version of CSAI-2 was carried out using CFA analysis.

Specification and identification of the Intensity CFA model for CSAI-2 (Urdu)

Following the theoretical model projected by researchers (Martens et al., 1990) (Figure 1.1), the hypothesized three factor model for intensity dimension of CSAI-2 (Urdu version). The model was drawn using AMOS (23) graphical interface. The latent constructs (i.e. cognitive anxiety, somatic anxiety, and self-confidence) are shown in the shape of ellipses, the rectangles shows the indicators of these latent constructs, the two headed arrows show the covariance, the single headed arrow pointing from unobserved variable to observed variable shows the relationship between them, while the circle with "e" shows the error term associated with each observed variable. The model has 351 distinct sample moments. In the CFA model there were 55 unknown parameters to be estimated (i.e. 23 loadings + 26 error variance + 6 covariance). In this regard, the three-factor hypothesized CFA model of CSAI-2 (Urdu version) for intensity has 296 degree of freedom (i.e. 351 – 55 = 296). Based on this information, the three-factor hypothesized CFA model of CSAI-2 (Urdu version) for intensity is over identified model.

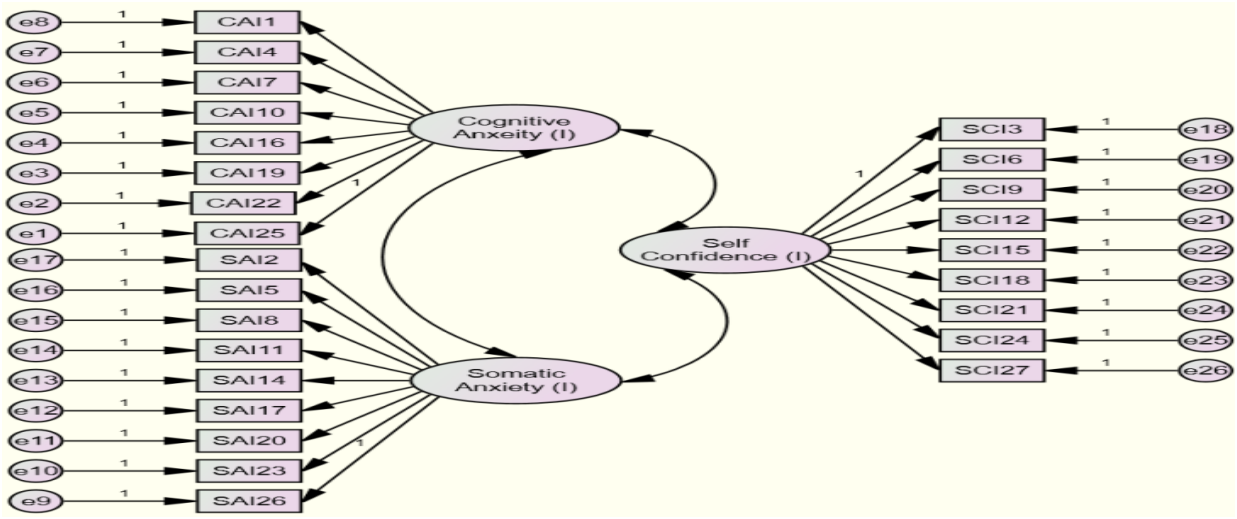

Figure 1.1: The three factors hypothesized model for intensity of CSAI-2 (Urdu version)

Estimation of CFA model of CSAI-2 (Urdu) for Intensity

Considering the recommendation of Hair et al. (2014), the preliminary three-factor CFA model of CSAI-2 (Urdu version) for intensity was tested using Maximum Likelihood estimation technique. The AMOS (23) output for preliminary CFA model of CSAI-2 (Urdu version) for intensity are provided in figure. The Goodness-of-fit Statistics for preliminary model are provided in the following table.

Table 1.5: GoF statistics for initial CSAI-2 (Urdu version) for intensity model

Goodness of Fit Indices	**Values for the Initial CSAI-2 (Urdu version) Model for Intensity**	**Recommended values**
Chi-Square (X2)	2946.411at $P \leq 0.001$	$P \geq 0.05$
normed chi-square (CMIN/DF)	9.954	1 < CMIN/df< 3.0
Goodness of Fit Index (GFI)	0.595	Values > .90
Comparative Fit Index (CFI)	0.745	Values > .90
Tucker Lewis Index (TLI)	0.720	Values > .90
Root Mean Square Error of Approximation (RMSEA)	0.170	Values < 0.08

As can be seen in the above table, almost all the fit statistics are well below or above the recommended values. The chi-square (X2) = 2946.411 which is significant at $P < 0.001$ shows a poor fit. However, Hair et al. (2014) suggested that chi-square test is very sensitive to the size of the sample (i.e. 310 in current papergoo), the larger the sample size the significant will be the chi-square value. The authors further suggested that this value should not be used in isolation. Therefore, other fit indices were consulted. The results show that normed chi-square value is well above the recommended range (i.e. 1 < CMIN/df< 3). Similarly, GFI, CFI, and TLI were .595, .745, and .720 respectively. These values are also not in the acceptable range (i.e. greater than .90). Additionally, the RMSEA value is also above the acceptable value of less than 0.08 (i.e. .170). Since, the model produce unacceptable fit indices values and therefore not fit with data. This further suggests that the model should be re-specified to be acceptable.

Estimation of CFA model of CSAI-2 (Urdu) for Intensity

Since GoF statistics are not satisfactory and indicates that there is room for improvement in model fit. Therefore, CFA was used in a post hoc manner (i.e. exploratory) (Hair et al., 2014). Researchers such as Tanaka and Huba (1984) recommended this approach by arguing that this approach is appropriate as long as the researcher is aware of the exploratory nature of his/her work. Additionally, McCullum (1995) argues that this approach is acceptable if the CFA model is validated on a new data set.

Accordingly, the re-specification of the CFA model was carried out in an iterative manner (i.e. one at a time). According to Hair et al. (2014), removing items simultaneously may hamper other parts of the model. Decision about removing a parameter or correlating the error terms of parameters was taken grounded on the suggestion of Hair et al. (2014). In this

regard, items with low standardized factor loading on their constructs (i.e. .7), high standardized residuals (greater than 2.58) and higher modification indices (i.e. 20) are candidates for removal. In this study, modification indices were analyzed for item removal because it identifies cross loading items and correlation of error term. Furthermore, Hair et al. (2014) argue that an item will be removed if 5% or more of the standardized residuals have values greater than 2.58. However, the decision of item removal will be taken in tandem with theory (McDonald and Ho, 2002; Hair et al., 2014). This decision of item removal in conjunction with theory will prevent sample specific modifications (Byrne, 2001). As a result, a defensible model from theoretical perspective will be constructed that is generalizable to a wider population (Hair et al., 2014) and is content valid (Ping, 2004).

Guided by the above rationale, fourindicators (i.e. CAI4, CAI7, CAI10, and CAI22) from Cognitive Anxiety for intensity were removed. The logic of removing these items is provided in light of the suggestions given by several researchers (i.e. Hair et al., 2014; McDonald and Ho, 2002). CAI4 was removed because of lower than the recommended factor loading (i.e. .57) on Cognitive Anxiety construct, while CAI7, CAI10, and CAI22 were removed because of cross loading and high association with modification indices. In this regard, CAI10 and CAI22 cross load on Somatic Anxiety and also result in high modification indices values. On the other hand, CAI7 was dropped because it's cross load on Self-Confidence and also a high modification indices value of greater than 51 is associated with it.

Similarly, five indicators (i.e. SAI5, SAI11, SAI14, SAI17, and SAI20) were removed from Somatic Anxiety construct of CSAI-2 (Urdu version) for intensity. Out of these items, SAI5 was dropped because its cross load on Cognitive Anxiety, high standardized residuals association (i.e. 5.83, 2.59, and 2.67), and high modification indices values i.e. combined MI values greater than 42). Similarly, SAI20 was also deleted because of high standardized residuals association (i.e. 5.83 and 4.413) and low standardized factor loading (i.e. 0.62) on Somatic Anxiety. SAI11 also cross load on Cognitive anxiety and high modification indices were associated with it (i.e. MI greater than 134). SAI17 and SAI14 were dropped because of low standardized factor loading of .64 and .43 respectively on Somatic Anxiety. Similarly, the error term associated with SAI2 (i.e. e15) and SAI18 (i.e. e17) were correlated because of high modification indices values (i.e. 262.466). This further suggests that correlating the error term will reduce the chi-square value by almost 262 units.

In the similar vein, four indictors were dropped from Self-Confidence construct of CSAI-2 (Urdu version) for intensity. Out of these items, SCI3 was deleted because of its low standardized factor loading of .25 on Self-Confidence construct. The reason to drop the other

three indicators are: SCI18 was dropped because its cross load on Somatic Anxiety, low standardized factor loading of .65, and high MI values association (i.e. MI greater than 51); SCI15 was removed because of its cross loading on Somatic Anxiety and high MI values association (i.e. MI values greater than 146); Lastly, SCI24 was dropped because of its cross loading on Cognitive Anxiety and high modification indices values association (i.e. MI values greater than 77). Similarly, the error term associated with SCI21 (i.e. e24) and SCI27 (i.e. e26) were correlated because of high modification indices values (i.e. 190.083). This further suggests that correlating the error term will reduce the chi-square value by almost 190 units.

The prototypical was re-measured, pilot scrutiny of the correlation matrix and standardized residuals display no zone of indigenous rinsing. The output generated by AMOS (23) for the amended CFA three-factors CSAI 2 (Urdu version) for intensity is provided in the following figure 1.2.

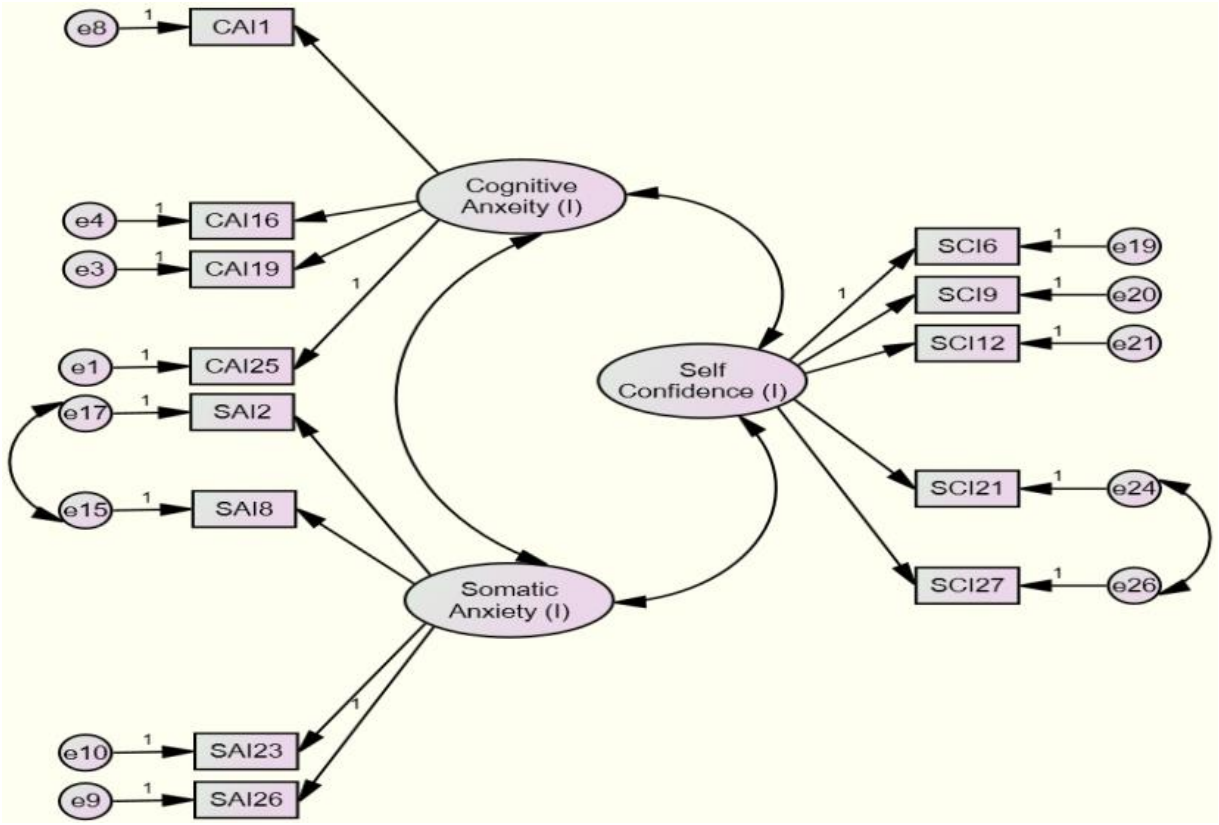

Figure 1.2: Modified CFA three-factor CSAI-2 (Urdu version) model for intensity

The modified CFA three-factor CSAI-2 (Urdu version) model for intensity was estimated, the GoF indices are given in the following table. GFI, CLI, and TLI are all above the recommended value of 0.9, while RMSEA is less than 0.08. Similarly, the normed chi-square value is also in the range (i.e. i.e. 1 <X2/df< 3.0).

Table 1.6.: GoF statistics for the modified CFA three-factor CSAI-2 (Urdu version) model for intensity

Goodness of Fit Indices	**Values for the modified measurement model 2**	**Recommended value**
Chi-Square (X2)	114.260 at $P \leq 0.001$	$P \geq 0.05$
normed chi-square (CMIN/DF)	1.904	1 < CMIN/df< 3.0
Goodness of Fit Index (GFI)	0.945	GFI ≥ 0.90
Comparative Fit Index (CFI)	0.990	CFI ≥ 0.90
Tucker Lewis Index (TLI)	0.987	TLI ≥ 0.90
Root Mean Square Error of Approximation (RMSEA)	0.054	RMSEA < 0.08

Finally, no practical meaning can be derived from the modification indices or standardized residuals, furthermore standardized factor loading show that each dimension was clearly interpretable. Consequently, modified CFA three-factor CSAI-2 (Urdu version) model for intensity was regarded as the best model on the bases of GoF statistics and theoretical interpretability.

Validity and Reliability of the Modified CSAI-2 (Urdu) for Intensity

Composite reliability of modified CSAI-2 (Urdu) for Intensity

The composite reliabilities for CSAI-2 (Urdu) for intensity are provided in the following table 1.8. According to the table all the values of composite reliabilities for the three constructs of CSAI-2 (Urdu) model for intensity are above the recommended value of 0.7 by Hair et al. (2014). The value of composite reliability for cognitive state anxiety, somatic state anxiety, and self-confidence are 0.94, 0.97, and 0.88 respectively.

Table 1.7: Standardized factor loading, Composite reliabilities, and average variance extracted of CSAI-2 (Urdu) for intensity

Cognitive State Anxiety (Intensity)	**Standardized Factor Loadings**	**Indicator Measurement Error**	**Squared standardized factor loadings**	**Critical ratio (C.R)**
CAI1	0.89	0.20	0.80	15.13
CAI16	0.98	0.04	0.96	16.47
CAI19	0.97	0.05	0.95	16.37
CAI25	0.70	0.52	0.48	

Sum	**3.54**	**0.81**	**3.19**	
Composite reliability			**0.94**	
AVE			**0.80**	

Somatic State Anxiety (Intensity)	**Standardized Factor Loadings**	**Indicator Measurement Error**	**Squared standardized factor loadings**	**Critical ratio (C.R)**
SAI2	0.91	0.17	0.83	37.59
SAI8	0.91	0.18	0.82	36.96
SAI23	0.98	0.03	0.97	86.73
SAI26	0.99	0.00	0.99	
Sum	3.80	0.39	3.61	
Composite reliability			**0.97**	
AVE			**0.90**	

Self-confidence (Intensity)	**Standardized Factor Loadings**	**Indicator Measurement Error**	**Squared standardized factor loadings**	**Critical ratio (C.R)**
SCI6	0.94	0.12	0.88	
SCI9	0.60	0.66	0.34	12.02
SCI12	0.97	0.05	0.95	31.52
SCI21	0.65	0.57	0.43	14.15
SCI27	0.69	0.52	0.48	15.51
Sum	3.84	1.92	3.08	
Composite reliability			**0.88**	
AVE			**0.61**	

Convergent validity of modified CSAI-2 (Urdu) for Intensity

Following Hair et al. (2014) suggestion, convergent validity was measured by examining the standardized factor loading, AVE and construct reliability. According to Hair et al. (2014), convergent validity will be evident if standardized factor loading of items are greater than 0.6, average variance extracted (AVE) greater than 0.5, and composite reliability greater than 0.7. According to table 1.8, the standardized factor loading for cognitive state

anxiety range from .70 to .98, for intensity, while for somatic state anxiety it ranges from .91 to .99, for intensity. Similarly, the standardized factor loadings for self-confidence ranges from .60 to .94 for intensity dimension. Similarly, average variance extracted (AVE) for CSAI-2 (Urdu) for intensity dimension ranges from .61 to .90. Furthermore, composite reliabilities for SCAI-2 (Urdu) for intensity dimension ranges from .88 to .97. All these values suggest a high convergent validity for all the constructs of CSAI-2(Urdu) for intensity dimension.

Discriminant of modified CSAI-2 (Urdu) for Intensity

The degree to which a latent variable is actually dissimilar from other latent variables in the model is called discriminant validity. In this research, discriminant validity was measured by the criteria given by Hair et al. (2014) and Farnell and Larker (1981). According to these authors, discriminant validity is evident when the AVE value of every paradigm is greater than the square of inter-construct correlation. Using this criterion, the AVE values calculated were compared to square inter-construct correlation and it was found that every AVE for intensity dimension was higher than the corresponding inter-construct correlation. The results are provided in the following table.

Table 1.8: Discriminant validity of CSAI-2(Urdu) for intensity

	Cognitive Anxiety (Intensity)	**Somatic Anxiety (Intensity)**	**Self-Confidence (Intensity)**
Cognitive Anxiety (Intensity)	**.80**		
Somatic Anxiety (Intensity)	.057	**.90**	
Self-Confidence (Intensity)	.112	.037	**0.61**

Scoring

The modified valid CSAI-2 (Urdu version for intensity) consists of (13) statements with (04) statements each of cognitive and somatic anxiety and (05) statements of self-confidence. The scores for intensity will be calculated by figuring a distinct score for each domain, stretching from a low score of (04) each for cognitive and somatic component to a high of (16) for each of two sub scales while (05) is lower and (20) is higher score for self-confidence component.

Discussions

The purpose of this research paper is to scrutinize confirmatory factor analysis and fused consistency for intensity dimension of Urdu version of the CSAI-2. The modified CFA three-factor CSAI-2 (Urdu version) model for intensity was estimated, the GoF indices are GFI, CLI, and TLI are all above the recommended value of 0.9, while RMSEA is less than 0.08. Similarly, the normed chi-square value is also in the range (i.e. i.e. $1 < X^2/df < 3.0$). Besides GoF indices, standardized factor loading for all items are significant and above the recommended value of 0.7. Furthermore, standardized residuals were also in the recommended range of -2.58 and +2.58. Finally, no practical meaning can be derived from the modification indices or standardized residuals, furthermore standardized factor loading show that each dimension was clearly interpretable. Consequently, modified CFA three-factor CSAI-2 (Urdu version) model for intensity was regarded as the best model on the bases of GoF statistics and theoretical interpretability. The value of reliability for cognitive, somatic anxiety, and self-confidence are 0.94, 0.97, and 0.88 respectively. In this study we developed a revised Urdu version of the instrument. Existing proof has delivered extra experiential backing for the application and implementation of the translated versions in several other countries, i.e. Switzerland, Spain, Estonia, Brazil, France, Thai, Tunisia, and Malaysian. The present study may contribute to the knowledge domain regarding sport psychology in Pakistani frameworks and to simplify pragmatic performs in the locales.

References

Byrne, B. M. (2001). Structural equation modeling with AMOS, EQS, and LISREL: Comparative approaches to testing for the factorial validity of a measuring instrument. International journal of testing, 1(1), 55-86.

Cox, R. H., (2007). Sports Psychology: Concepts and Applications. New York: McGraw Hill.

Cox, R. H., Martens, M. P., & Russell, W. D. (2003).Measuring anxiety in athletics: the revised competitive state anxiety inventory–2.Journal of sport and exercise psychology, 25(4), 519-533.

Fernandes, M. G., Nunes, S. A. N., Vasconcelos-Raposo, J., & Fernandes, H. M. (2013).Factors influencing competitive anxiety in Brazilian athletes. Revista Brasileira de Cineantropometria & Desempenho Humano, 15(6), 705-714.

Fernandez, E.M., Rio, G.L. and Fernandez, C.A. (2007). Propriedadespsicometricas de la version espanoladelinventario de ansiedade competitive CSAI-2R en deportistas

[Psychometric properties of the Spanish version of the Revised Anxiety Inventory-2 with athletes]. Psicothema, 19(1):150-155

Hair Jr. F., J., Sarstedt, M., Hopkins, L., & G. Kuppelwieser, V. (2014). Partial least squares structural equation modeling (PLS-SEM) An emerging tool in business research. European Business Review, 26(2), 106-121 .

Hajji, J., & Elloumi, A. (2017). Validation of the Tunisian Version of the French Version of the Competitive State Anxiety Inventory-2 Revised (CSAI-2R), Including Frequency and Direction Scales. International Journal of Emergency Mental Health, 19, 1-7.

Hashim, H. A., Zulkifli, E. Z., & Yusof, H. A. (2010). Factorial validation of Malaysian adapted Brunel Mood Scale in an adolescent sample. Asian journal of sports medicine, 1(4), 185.

Hashim, H., & Baghepour, T. (2016).Validating the Factorial Structure of the Malaysian Version of Revised Competitive State Anxiety Inventory-2 among Young Taekwondo Athletes. PERTANIKA Journal of Social Sciences & Humanities, 24(2), 757-766.

Kelly, G. A. (1955). *The psychology of personal constructs. Volume 1: A theory of personality:* WW Norton and Company.

Lazarus, R. S. (2000*). How emotions influence performance in competitive sports*. The Sport Psychologist, 14(3), 229-252.

Lundqvist, C., & Hassmén, P. (2005). Competitive State Anxiety Inventory-2 (CSAI-2): Evaluating the Swedish version by confirmatory factor analyses. Journal of Sports Sciences, 23(7), 727-736.

MacCallum, R. C. (1995). Model specification: Procedures, strategies, and related issues .

Martens, R. (1977).*Sport competition anxiety test*.

Martens, R., Vealey, R. S., & Burton, D. (1990).*Competitive anxiety in sport:* Human kinetics.

Martinent, G., Ferrand, C., Guillet, E., & Gautheur, S. (2010). Validation of the French version of the Competitive State Anxiety Inventory-2 Revised (CSAI-2R) including frequency and direction scales. Psychology of Sport and exercise, 11(1), 51-57.

McDonald, R. P., & Ho, M.-H.R. (2002). Principles and practice in reporting structural equation analyses. Psychological methods, 7(1), 64.

Ostrow, A. (1996). *Directory of psychological tests in the sport and exercise sciences.* Morgantown: Fitness Information Technology. Inc., Publishers.

Ping Jr, R. A. (2004). On assuring valid measures for theoretical models using survey data. *Journal of Business Research*, *57*(2), 125-141.

Raudsepp, L., & Kais, K. (2008).Confirmatory factor analysis of the revised competitive state anxiety inventory-2 among Estonian athletes. International Journal of Sport and Exercise Psychology, 6(1), 85-95.

Rogers, A. H., & Walsh, T. M. (1959).*Defensiveness and unwitting self-evaluation.Journal of clinical psychology, 15(3), 302-304.*

Smith, R. E., Smoll, F. L., & Schutz, R. W. (1990).*Measurement and correlates of sport-specific cognitive and somatic trait anxiety:* The Sport Anxiety Scale. Anxiety research, 2(4), 263-280.

Spielberger, C. D., & Gorsuch, R. L. (1983). *State-trait anxiety inventory for adults: sampler set: manual, test, scoring key*. Mind Garden.

Tanaka, J. S., & Huba, G. J. (1984). Confirmatory hierarchical factor analyses of psychological distress measures. Journal of personality and social psychology, 46(3), 621.