

# EMOTIONAL INTELLIGENCE, MENTAL TOUGHNESS, SELF-CONFIDENCE AND COMPETITIVE ANXIETY IN PREDICTING ATHLETE PEAK PERFORMANCE

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## **Abstract**

*Many factors that affect peak performance (PP) in athletes, including emotional intelligence (EI), mental toughness (MT), self-confidence (SC). However, these factors cannot be maximized without mediation by competitive anxiety (CA). This study wanted to determine the effect of EI, MT, SC, on CA, and PP, and the influence of CA on PP. In addition, this study also wants to see the role of CA mediation in increasing PP in athletes. The subjects in this study were 195 athletes. Data were collected using the Emotional Intelligence Scale (Lane, et al., 2009), Mental Toughness Questionnaire 48 (Vaughan, et al., 2017), Trait Robustness of Sport-Confidence Inventory (Faghir, et al., 2013), Sport Anxiety Scale-2 (Smith, et al., 2006), and Peak Performance (Fakhrurri, 2018) using the characteristics of PP from Garfield and Bennett (1984). Hypothesis testing uses the SEM approach which found that EI, MT, SC, affected CA (.023, .002, .02 < .05). Furthermore EI, SC, CA also influence PP (.000, .000, .035 < .05). However, MT has no effect on PP (.069 > .05). The findings of this study help young athletes to achieve PP in every match to the maximum and encourage their success in achieving achievements and bring victory in every match.*

**Keywords:** Emotional intelligence, Mental toughness, Self-confidence, Competitive anxiety, Peak performance

## **I. Introduction**

Peak performance (PP) in athletes in a match depends on a combination of technical, physical, and psychological skills. Previous researchers have assumed that perfectionism is a major factor in achieving good performance for athletes (Gould, Dieffenbach, & Moffett, 2002). But the researchers did not approve the results of the study. This is based on several reasons including those stated by Hall (2006); Flett and Hewitt (2005) that

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perfectionism is seen as one of the aspects that inhibits the achievement of the best performance for athletes. Perfectionism is one of personality that is characterized by a high level of struggle without the slightest shortcomings and sets very high-performance criteria accompanied by a very critical evaluation of the results obtained by athletes (Frost, Marten, Lahart, & Rosenblate, 1990; Flett & Hewitt, 2002). Perfectionism, which is a multidimensional aspect (Benson, 2003), and has dangerous and negative dimensions, maladaptive fibers (Stoeber & Otto, 2006; Chang, 2003; Enns & Cox, 2002), so it does not help the athlete's PP achievement but can reduce the performance of athletes athlete in competition. The results obtained from previous studies cause gaps from what researchers have gotten from the results of the literature review, so there is a need for further research related to how athletes can achieve the best PP in every game.

There have been many arguments that indicate that in the achievement of PP in athletes, it is more influenced by psychological aspects compared to physical aspects. One argument that supports this is the argument from Javaid, Ahmed, Ahmed and Sarwer (2016) which suggests that to achieve the maximum goals of PP in athletes, psychological skills are more influential and important than physical skills. Based on this, psychologist athletes practitioners and researchers have shown excessive curiosity in recognizing aspects that can increase PP in athletes, so that it can be applied in a sports team. The results of the initial data collection by researchers by distributing the PP scale from Fakhurri (2018) to 60 athletes at the Faculty of Sports UNM, showed that there were three athletes in the very high category (5%), fourteen athletes were in the high category (23.33% ), twenty-three athletes were in the moderate category (38.33%), sixteen athletes were in the low category (26.67%), and four athletes were in the very low category (6.67%). The results of preliminary data obtained can be concluded that the level of PP athletes tend to be classified as moderate.

Athletes must have a good psychological aspect in order to meet the demands of a competition, so they can perform optimally despite being under pressure. There are various psychological aspects that can affect PP in athletes, such as emotional intelligence (EI), mental toughness (MT), self-confidence (SC) and competitive anxiety (CA). These aspects can directly affect PP in athletes in the face of a match and CA can also be a mediator of other psychological aspects in influencing PP in athletes. Lack of EI, MT, and SC can cause CA to occur, thus affecting the achievement of PP in athletes. This argument is supported by the opinion of Moran (2004) which states that there are many factors that affect PP in athletes such as hope, perfectionism, and fear of failure, as well as lack of self-confidence that can cause feelings of anxiety for athletes and will adversely affect the performance displayed.

Previous research that supports the above argument is research by Algani, Yuniardi, and Masturah (2018) who found that psychological factors such as feeling saturated, depressed, stressed, fear of failure, explosive emotions, lack of self-confidence, and anxiety can cause achievement athletes to decline. The anxiety that arises during a game is a negative emotional reaction to an athlete and an unrealistic and unpleasant state of mind (Javaid, et al., 2016; Griffith, 1934). Anxiety can occur if an athlete considers a match to be a formidable challenge to success, given his performance abilities. Martens, Burton, Vealey, Bump, and Smith (1990) suggested that anxiety will interfere with the athlete's appearance because there is a feeling of failure to fail so that it can affect the athlete's performance when facing a match. In addition to anxiety, other psychological aspects that also have an effect on PP in athletes are EI, MT, and SC. Research conducted by Kopp and Jekauc (2018) found that EI is a predictor that has an effect on the achievement of PP in athletes. In addition, research

conducted by Gucciardi, Gordon, Dimmock (2008) found evidence that MT can affect athlete performance, so athletes become more successful in every match. Furthermore, SC is one of the most important variables related to athlete performance (Robazza & Bortoli, 2007). Further research results have shown that high levels of SC can affect ability and success in athlete performance (Martens et al., 1990).

Based on the description of the problem above, the researcher is interested in carrying out research with the title "Emotional Intelligence, Mental Toughness, Self-Confidence And Competitive Anxiety In Predicting Athlete Peak Performance". The purpose of this study is to answer the following questions; how do athletes achieve PP in each match? This study has eight main objectives, namely: (1) to determine the effect of EI on CA; (2) to determine the effect of MT on PP; (3) to determine the effect of SC on PP; (4) to determine the effect of CA on PP; (5) to determine the effect of EI on PP; (6) to determine the effect of MT on PP; (7) to determine the effect of SC on PP; (8) to examine the role of CA mediation in increasing PP in athletes.

## **II. Theoretical Background and Research Hypothesis**

Goleman (2004) suggests that EI is the ability possessed by individuals to recognize their own feelings and feelings of other individuals, the ability to motivate themselves and the ability to manage emotions in a good way in relation to others. Mayer, Salovey, and Caruso (2000) suggested that EI is the ability to understand and express emotions, assimilate emotions in thought, understand and reason with emotions, and regulate emotions in self and other individuals. Lane, Meyer, Devonport, Davies, Thelwell, Gill, Diehl, Wilson, and Weston (2009) suggest that EI consists of five factors, namely appraisal of others emotions, appraisal of own emotions, regulation, social skills, and utilization of emotions. Coulter, Mallett, and Gucciardi (2010) suggest that MT is a collection of sports values, attitudes, emotions, and cognitions that are developed specifically and inherently, which influence the way individuals approach, respond to, and assess both the pressures, challenges, and difficulties that interpreted negatively and positively to consistently achieve its goals. Jones, Hanton, and Connaughton (2002) stated that MT is an attitude to remain determined, focused, confident, and under control under pressure through training and competition. Vaughan, Hanna, and Breslin (2017) suggested that MT consists of six factors, namely challenge, commitment, emotion control, control life, confidence ability, and interpersonal confidence.

Vealey (2009) suggests that SC is an individual's belief in internal resources, especially the ability to achieve success. Bandura (1997) suggests that SC is the athlete's ability to maintain confidence in himself. Faghir, Tojari, and Amirtash (2013) suggested that SC consists of three factors, namely factors affecting self-confidence, stability of self-confidence, and return of self-confidence. Cox (2007) assumes that CA can be interpreted as a state of distress or negative emotions experienced by athletes before and when competing. The increase in CA is in line with how athletes judge and interpret the match situation. If the athlete considers the situation of the match to be stressful, it raises stress on the athlete and in the end, creates anxiety. Weinberg and Gould (2011) suggested that CA negative emotional states are characterized by nervousness, worry, and fear related to activities in the body, which is caused by the presence of shadows before the match and during the match. Smith, Smoll, Cumming, and Grossbard (2006) suggest that CA consists of three factors, namely somatic, worry, and concentration disruption.

Satiadarma (2000) suggested that peak performance is the optimal performance achieved by athletes. Suinn (2005) argues that peak performance is a hidden ability of athletes who are released through skills in the context of a match by optimizing the potential that exists in themselves, so as to produce an achievement. Garfield and Bennett (1984) suggested that PP consists of eight characteristics, namely mental relax, physic relax, optimistic, focusing on match, high energy, high awareness, motion-controlled, and free from disruption. Based on the theoretical description and findings from the previous research described above, the researchers formulated them in the following seven hypotheses:

*Hypothesis 1. Emotional intelligence (EI) significantly influences competitive anxiety (CA)*

Factors that can affect athletes' performance when facing a match, one of which is CA. Gunarsa (2004) suggested that EI is able to make athletes adjust to the problems faced in a match so that athletes do not become depressed and feel anxious. Research conducted by Pradnyaswari and Budisetyani (2018) found that there was a significant relationship between EI and CA in female softball athletes. Further research conducted by Titisari and Haryanta (2018) also found that there was a negative relationship between EI and CA in athletes when facing matches.

*Hypothesis 2. Mental toughness (MT) significantly influences competitive anxiety (CA)*

According to Hossein, Mohd, Soumendr, Anwar, and Muzaimi (2016) suggested that athletes who have high CAs need good MT development training, so they are not easily influenced by the situation in the match. The higher the MT of the athlete, the lower the level of CA he has, and the more able the athlete to be positive about the pressure, the lower the CA in dealing with matches. The results of research conducted by Malhotra and Kaur (2017) found that there was a significant negative relationship between MT with depression and CA in athletes.

*Hypothesis 3. Self-confidence (SC) significantly influences competitive anxiety (CA)*

Anxiety experienced by athletes when competing is a momentary anxiety because the anxiety experienced is only based on the situation of the match. Satiadarma (2000) argues that anxiety in athletes is triggered in certain situations that is when athletes face a match. Athletes feel CA due to a lack of SC when competing. Husdarta (2010) suggested that a low SC can cause CA in athletes. Research conducted by Woodman and Hardy (2003) found that SC and CA have a significant relationship in dealing with a match.

*Hypothesis 4. Emotional intelligence (EI) significantly influences peak performance (PP)*

Athletes and coaches experience different emotions when they want to achieve optimal peak performance (Chan & Mallett, 2011). The pressure experienced by athletes will be stronger if the goals to be achieved are very high value (Laborde, Brull, Weber, and Anders, 2011). Therefore, emotional intelligence can

increase interaction between players in a team, thereby increasing the performance of athletes in his team. (Koch, Christopher, and Schanzenbach, 2010). Higher EI in athletes will achieve better peak performance in team sports, such as cricket, hockey, and baseball (Crombie, et al., 2009; Perlini, et al., 2006; Zizzi, et al., 2003).

*Hypothesis 5. Mental toughness (MT) significantly influences peak performance (PP)*

According to Clough, Earle, and Sewell (2002) suggested that MT is one of the determining factors in achieving maximum performance. Mentally resilient individuals have high self-confidence and unwavering confidence. Algani, Yuniardi, and Masturah (2018) suggested that MT can make athletes feel relaxed, calm, and excited, because they can develop two skills that drain positive energy as perceived, eliminate difficulties and think to behave or ignore problems, pressures, and mistakes during the competition.

*Hypothesis 6. Self-confidence (SC) significantly influences peak performance (PP)*

According to Feltz (1984) suggested that SC is one of the psychological factors that is most considered to affect athlete performance and has been referred to as the most critical cognitive factor in sports. Bandura (1997) suggested that SC can contribute to peak performance in athletes. Although self-confidence is considered to affect athlete performance, it cannot be determined what causes this influence only by correlational study designs (Gould, et al., 1981; Highlen, et al., 1979; Mahoney, et al., 1977).

*Hypothesis 7. Competitive anxiety (CA) significantly influences peak performance (PP)*

One of the most discussed topics in sports psychology is the influence of CA on performance (Woodman & Hardy, 2001). Research related to CA focuses on the conception of multidimensional anxiety. The CA component has an influence on athlete performance, including somatic anxiety and cognitive anxiety (Martens, et al., 1990). Athletes with high CA levels will cause irrational fear or physical and psychological tension, compared to athletes with low CA levels (Amanendra et al., 2018).

*Hypothesis 8. Competitive anxiety (CA) mediates the influence of emotional intelligence (EI), Mental toughness (MT), Self-confidence (SC) on peak performance (PP)*

The results of the research described above, show that EI, MT, and SC have an influence on CA, and CA affects PP. This study proposes that there is a mediating effect of CA between the influence of EI, MT, and SC on PP.

### **III. Method**

*Design*

This research uses quantitative methods. Azwar (2018) suggested that quantitative research is a type of research that emphasizes his analysis of quantitative data collected through measurement procedures and processed by statistical analysis methods.

#### *Variable identification*

Exogenous variables in this study are EI, MT, and SC. Endogenous variables in this study are CA and PP, and there are also mediating variables, namely CA.

#### *Operational definition*

EI is an athlete's ability to recognize feelings and control his own emotions in the right way when competing. MT is the athlete's ability to recognize situations precisely, both in attitude and feeling as the strength to face challenges and pressures so that targets can be achieved. SC is an athlete's attitude and feeling towards belief in his own abilities so that anxiety in facing a match is reduced and disappears. CA is a feeling of fear and anxiety that continues to increase and arise due to the shadows associated with things that are not desired to occur in the face of a match so that athletes feel threatened. PP is an optimal and perfect condition by athletes by using mental and physical potential simultaneously when competing.

#### *Subject*

The subjects in this study were 195 student-athletes consisting of badminton, soccer, basketball, volleyball, takraw soccer, swimming, karate, table tennis, tennis, archery, boxing, taekwondo, handball, athletics, and Softball with an age range of 18 to 22 years, obtained using cluster random sampling techniques. Azwar (2010) suggested that cluster random sampling is a sampling technique by randomizing groups in the population.

#### *Instruments*

EI was measured by the Emotional Intelligence Scale (EIS) which was adapted from the Lane, et al. (2009). MT was measured by the Mental Toughness Questionnaire 48 (MTQ48) scale adapted from the Vaughan, et. al. (2017). SC is measured by the Trait Robustness of Sport-Confidence Inventory (TROSCI) scale adapted from the Faghir, et. al. (2013). CA is measured by the Sport Anxiety Scale-2 (SAS-2) scale adapted from the Smith, et. al. (2006). PP is measured by the Peak Performance scale adapted from the Fakhrurri scale (2018) using the Peak Performance characteristics of Garfield and Bennett (1984). All variables in this study were measured on a Likert scale, the choice of answers for each scale being equated by the researcher using five points ranging from one (strongly disagree) to five (strongly agree).

### *Statistical analysis*

The data obtained were analyzed using the structural equation model (SEM) method. Ghazali (2008) argues that SEM is a combination of two separate statistical methods, namely factor analysis developed in psychology and psychometrics, as well as simultaneous equation models developed in econometrics. SEM consists of two parts, the first is the measurement model that connects observed variables to latent variables through confirmatory factor analysis (CFA), the second is a structural model that links between latent variables through a system of simultaneous equations (Ghozali, 2008). This structural part of the model is used to test the research hypotheses. Azwar (2010) suggested that the hypothesis is a temporary answer to the research question. The significance level for hypothesis testing is  $< .05$ . Ghazali (2008) suggested that the assumption test in using the SEM method is a multivariate normality test. Harrington (2009) suggests that the multivariate normality test is a statistical test that aims to test the assumption that the data distribution on each research variable to be analyzed is normally distributed simultaneously. Ghazali (2008) states that the significance level of data expressed is multivariate normal distribution, ie if the critical ratio criteria in the multivariate section are  $\pm 2.58$  at the significance level of  $.01$ . The data processing is carried out using the help of the AMOS version 22.00 program.

The SEM analysis method is also able to test the validity and reliability of the measurement model. The validity and reliability used in this study are the construct validity and reliability revealed by the CFA method contained in the SEM method. The construct validity is the extent to which the test measurement results support the theoretical concepts desired by the original measurement objectives (Azwar, 2016; Gregory, 2013). Construct reliability is the ability of each indicator to identify a variable (Ghozali, 2008). Furthermore, Ghazali (2008) argues that there are four measurements in construct validity, first convergent validity, that is, the items in each latent construct must be at a high proportion of variance by looking at the factor loading value at the significance level  $> .5$ . The second variance extracted (AVE) is the average percentage of AVE values between items in a set of latent constructs which is a summary of convergent indicators with a significance level of  $> .5$ . Third is constructed reliability (CRI) which is also an indicator of convergent validity with a significance level of  $> .7$ . The fourth discriminant validity is to measure how far the construct is really from the other constructs. A high validity discriminate value indicates that a construct is able to reveal the phenomenon being measured. The way to test it is by comparing the square root of AVE with the correlation value between constructs. If the square root value of AVE is higher than the correlation between other constructs, it can be said that convergent validity is good and the measurement model is valid.

Ghozali (2008) argues that the SEM method also shows the existence of goodness of fit which aims to measure and evaluate the suitability of the measurement model and structural models proposed with the phenomena in the field. Natalya and Purwanto (2018) suggested that goodness of fit was used to prove the grouping of items in accordance with the theoretical model that was designed. Criteria for measuring the model included in the goodness of fit category can be seen from the Chi-square value must be greater than the Chi-square table,  $p\text{-value} > .05$ , GFI, CFI, TLI  $> .90$ , and the RMSEA is still below  $.05$  (Ghozali, 2008).

## IV. Result

SEM analysis requires that the data are normally distributed together (multivariate) to avoid bias in the interpretation of data that can affect other data. Measurement of data normality is carried out simultaneously with the process of testing the measurement model through computational calculations using the AMOS version 22.00 program. Multivariate data normality test results can be seen in the table below.

Table 1. Multivariate normality test

	Va						
	riable	in	ax	kew	.r.	urtosis	.r.
	SC						
1		.000	.000	476	,711	248	706
	SC						
2		.000	.000	273	,559	005	014
	SC						
3		.000	.000	.129	,736	.330	.941
	M						
T6		.000	.000	305	,740	056	160
	M						
T5		.000	.000	047	266	.127	.363
	M						
T4		.000	.000	385	,198	.102	.291
	EI						
5		.000	.000	151	860	.011	.032
	EI						
4		.000	.000	633	,610	705	.008
	PP						
8		.000	.000	336	,913	141	402
	PP						
7		.000	.000	289	,650	.002	.005
	PP						
6		.000	.000	025	140	.229	.651



	Va						
	riable	in	ax	kew	.r.	urtosis	.r.
	PP						
5		.000	.000	105	600	.266	.757
	PP						
4		.000	.000	412	,348	324	924
	PP						
3		.000	.000	.008	,045	.478	1.363
	PP						
2		.000	.000	222	,264	.048	.137
	PP						
1		.000	.000	714	,070	699	.993
	C						
A3		.000	.000	526	,000	472	.345
	C						
A2		.000	.000	316	,799	135	384
	C						
A1		.000	.000	.065	,368	.313	.894
	M						
T1		.000	.000	413	,355	256	731
	M						
T2		.000	.000	370	,107	383	.092
	M						
T3		.000	.000	563	,209	713	.032
	EI						
1		.000	.000	202	,150	.038	.108
	EI						
2		.000	.000	118	675	.123	.351
	EI						

Va			l			
riable	in	ax	kew	.r.	urtosis	.r.
3	.000	.000	153	873	072	206
M						
ultivariate					.341	255

Based on the results of normality test data presented in table 1 above shows that the data has been normally distributed multivariate with a value of c.r (critical ratio) of .255 or still in the range of  $-2.58 < c.r. < 2.58$ , so it is worth further testing. Measurement model testing results can be seen in the figure below.

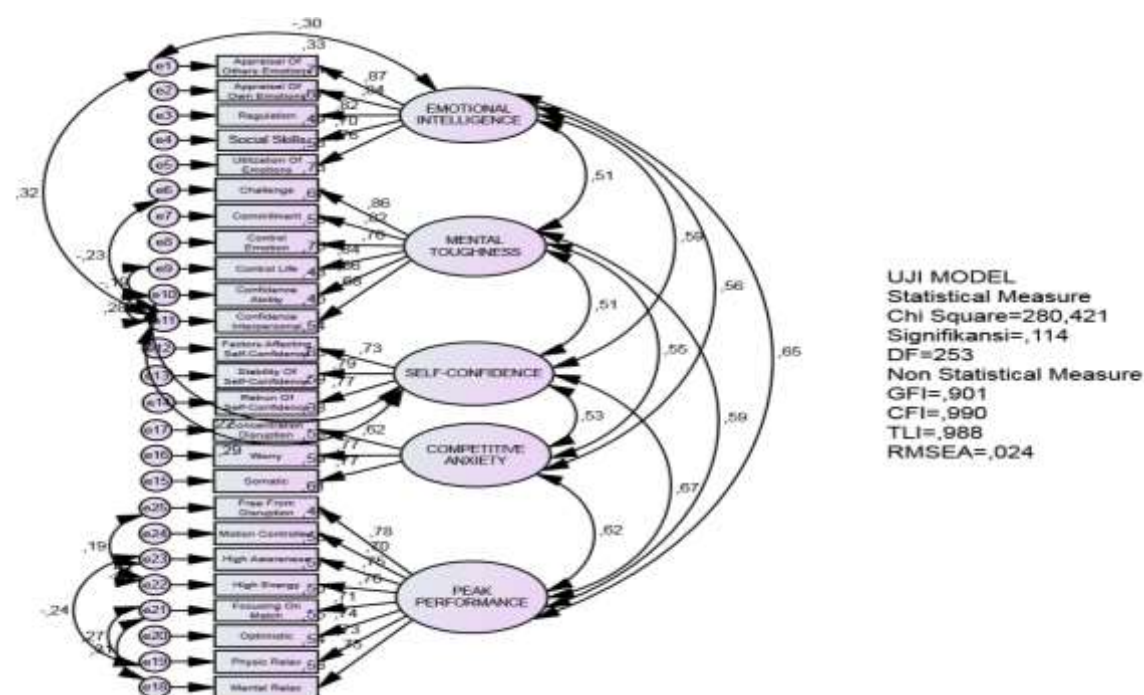


Figure 1. Test the measurement model

Based on figure 1 above the measurement model test in this study is at a good level, this can be seen from the calculated Chi-square value (280.421) smaller than the Chi-square table (291.101). This value is supported by a significance value of .114 or above the threshold value of .05, which means that the model used in this study has been confirmed by data in the field, where the theory adapted does not differ significantly from the phenomena in the field. In addition, when viewed from the non-statistical measure test, known values of GFI (.901), CFI (.990), and TLI values (.988) are above the cut-off value of (.90), and the value of root mean square error of approximation (RMSEA) is still below .05, which is equal to .024. Based on this, the model used in this study has passed the model fitness test or goodness of fit, so it is feasible for further testing in the structural test model. The results of convergent validity and construct reliability testing can be seen in the table below.

Table 2. Test convergent validity and construct reliability

Variable and Indicator	Refer ences	S LF $\geq .5$	.E	P $\leq .05$	A VE $\geq .5$	C RI $\geq .7$
Emotional Intelligence (EI)						
Appraisal of others emotions		.8		*		
		69	245	**		
Appraisal of own emotions		.8		*		
		45	286	**		
Regulation	Lane, et al. (2009)	.8		*	.6	.8
		21	326	**	39	99
Social skills		.6		*		
		98	513	**		
Utilization of emotions		.7		*		
		63	418	**		
Mental Toughness (MT)						
Challenge		.8		*		
		55	269	**		
Commitment		.8		*		
		16	334	**		
Control emotion		.7		*		
	Vaug han, et al. (2017)	.6		**	.5	.8
Control life		.8		*	90	97
		37	299	**		
Confidence ability		.6		*		
		58	567	**		
Confidence interpersonal		.6		*		
		82	535	**		
Self-Confidence (SC)						
Factors affecting	Faghi	.7		*	.5	.8

Variable and Indicator	References	S LF $\geq .5$	E .E	P $\leq .05$	A VE $\geq .5$	C RI $\geq .7$
self-confidence	r, et al. (2013)	32	464	**	84	08
Stability of self-confidence		.7 95		* **		
Return of self-confidence		.7 66		* **		
Competitive Anxiety (CA)						
Somatic		.7 70		* **		
Worry	Smith , et al. (2006)	.7 68		* **	.5 16	.7 63
Concentration disruption		.6 17		* **		
Peak Performance (PP)						
Mental relax		.7 50		* **		
Physic relax		.7 35		* **		
Optimistic		.7 40		* **		
Focusing on match	Garfi eld & Bennett (1984)	.7 08		* **	.5 48	.9 06
High energy		.7 56		* **		
High awareness		.7 49		* **		
Motion controlled		.6 99		* **		

Variable and Indicator	Refer ences	S LF $\geq .5$	E .E	P $\leq .05$	A VE $\geq .5$	C RI $\geq .7$
Free from disruption		.7 84		* **		

Based on the results of the convergent validity test and construct reliability presented in table 2 above shows that all items of the indicator have a factor loading value above .5, so it can be said that the indicator has a high correlation to the variables measured and it can be said that all items of the indicator is valid. Furthermore, the results of construct reliability also indicate that the CRI value of each variable has a value greater than the threshold value of .7, so it can be said that the measured variable has been reliable and is in the good category. Discriminant validity test results can be seen in the table below.

Table 3. Discriminant validity test

Variable	SC	PP	CA	MT	EI
SC	<b>1.000</b>				
PP	.673	<b>1.000</b>			
CA	.534	.617	<b>1.000</b>		
MT	.508	.593	.547	<b>1.000</b>	
EI	.593	.653	.555	.507	<b>1.000</b>

Note. SC = self-confidence; PP = peak performance; CA = competitive anxiety; MT = mental toughness; EI = emotional intelligence.

Based on the results of the discriminant validity test presented in table 3 above shows that the square root value of AVE (bold numbers) has a higher value than the correlation value between variables, so it can be said that the measurement model is valid. Structural model test results can be seen in the figure below.

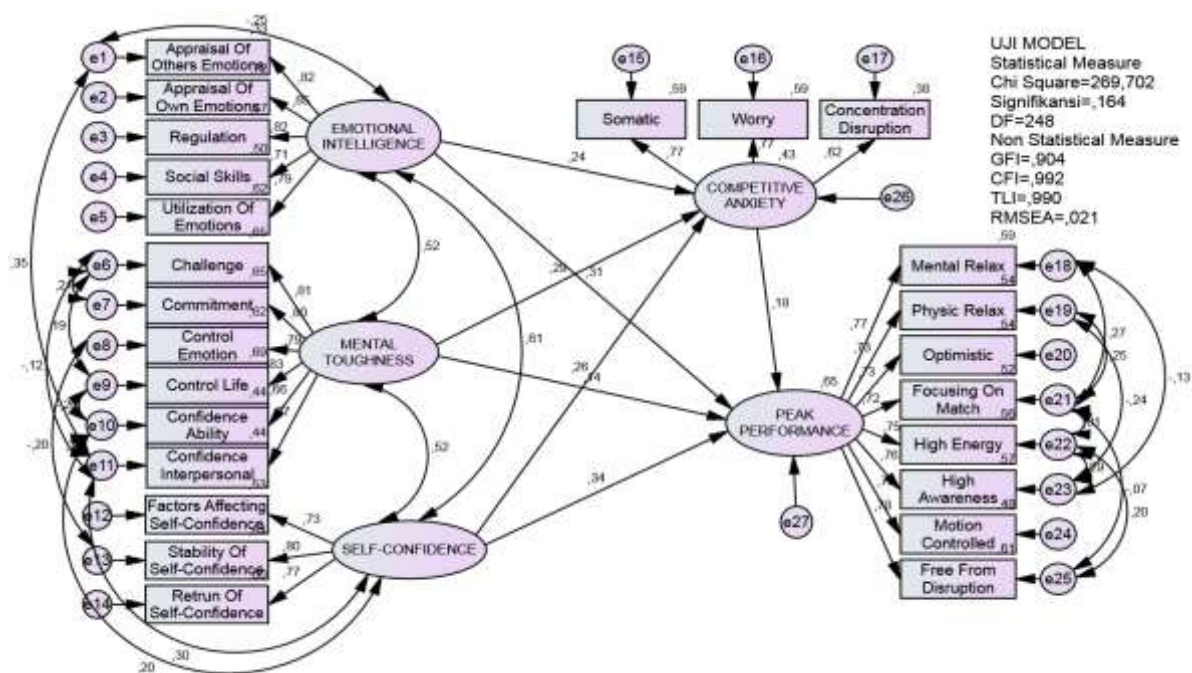


Figure 2. Test the structural model

Based on the full structural test of the model above, it is known that the loading factor value of all variables in this study is already above the threshold value of .5, with beta values between variables in the range of .14 to .34, which means that each variable has different levels of urgency in supporting the hypothesis in this study. When viewed from the goodness of fit test, each measure in the statistical measure and non-statistical measure tests is at a good level, where the chi-square value (269,702) is below the chi-square table (285,733) and the significance value is already above the threshold value (threshold) of (.164 > .05). In addition, in terms of non-statistical aspects, all measures such as the goodness of fit index (GFI) or (CFI), or (TLI) are all above the .90 level, supported by a value (RMSEA) of .021 or still above .05. The results of hypothesis testing between variables in this model can be seen in the table below.

Table 4. Hypothesis testing

Variable	Estimate	S.E.	C.R.	P
EI→CA	.236	.104	2.276	.023
MT→CA	.276	.091	3.049	.002
SC→CA	.275	.119	2.318	.02
CA→PP	.168	.079	2.112	.035
SC→PP	.338	.09	3.757	***

MT→PP	.119	.066	1.817	.069
EI→PP	.286	.077	3.725	***

*Note.* EI: emotional intelligence; MT: mental toughness; SC: self-confidence; CA: competitive anxiety; PP: peak performance.

Table 4 above shows that EI has a significant effect on CA with a probability value of .023 or below .05, with the value of the critical ratio (C.R.) above the threshold value of 1.96, amounting to 2,276. The estimated value of the influence of the variable is .236 which means that EI influences the CA by 23.6%, thus it can be said that hypothesis 1 in this study has been supported or  $H_0$  is rejected  $H_a$  accepted. MT also shows a significant effect on CA with a probability value of .002 or below .05, with a critical ratio (C.R.) above the threshold value of 1.96, which is 3.049. The estimated value of the influence between these variables is .276 which means that MT gives influence to CA by 27.6%, therefore it can be concluded that hypothesis 2 in this study has been supported.

The SC variable also shows a significant influence on CA with a probability value of .02 or below .05, with a critical ratio (C.R.) above the threshold value of 1.96, 2.318. The estimated value of the influence between these variables is .275 which means that SC gives influence to CA by 27.5%, therefore it can be concluded that hypothesis 3 in this study has been accepted. The variables EI, SC, and CA also significantly affect PP with probability values of .000, .000, and .035, respectively, which are below .05. The estimated value of the three variables is .286, .338, and .168 which means that if an athlete has good EI, SC, and CA abilities, the athlete will be able to achieve maximum PP by giving an effect of 28.6%, 33.8 %, and 16.8%. Based on this it can be concluded that hypotheses 4, 6, and 7 in this study are well supported.

However, the MT variable does not show a direct significant effect on PP with a significance value of .069 or above .05, with a critical ratio (C.R.) value below the threshold value of 1.96, which is 1.817. The estimated value of the influence between these variables is .119 means that MT gives effect to the PP of 11.9%, therefore it can be concluded that hypothesis 5 in this study was rejected. The magnitude of the effect of each latent variable directly or indirectly and the total effect can be seen in the following table. The results of this analysis provide evidence that there is a full mediating effect between MT on PP, in other words, that CA fully mediates the influence of MT on PP on athletes, thus supporting hypothesis 8.

Table 5. Direct effects, indirect effects, and total effects

Variable	Direct Effects	Indirect Effects	Total Effects
EI→CA	.236	.000	.236
MT→CA	.295	.000	.295
SC→CA	.256	.000	.256

CA→PP	.183	.000	.183
SC→PP	.342	.047	.389
MT→PP	.139	.054	.192
EI→PP	.311	.043	.354

Note. EI: emotional intelligence; MT: mental toughness; SC: self-confidence; CA: competitive anxiety; PP: peak performance.

Based on table 5 above shows that the magnitude of the effect of each latent variable both directly and indirectly and in total effect has a different effect contribution value. The measurement results show that the variable that has the biggest direct effect on PP is the SC variable with an estimate of .342, and the variable that has the biggest direct effect on CA is the MT variable with an estimate of .295. The measurement results also show that the variable that has the greatest indirect effect on PP is the MT variable with an estimate of .054. Furthermore, the measurement results also present the largest total effect on PP variables, namely the SC variable with an estimate of .389, and the variable that has the greatest total effect on the CA variable, namely the MT variable with an estimate of .295.

## V. Discussion

This study considers that EI, MT, SC, and CA are variables that are at the core of the achievement of PP in athletes. The researchers' findings show that EI influences CA. The researchers' findings are in line with the results of research conducted by Boroujeni, Mirheydari, Kaviri, and Shahhosseini (2012) who found that there is a negative relationship between EI and CA, which means that if athletes are able to create a good EI for themselves then CAs are felt before and during the competition to be reduced. The results obtained by researchers and previous studies can be used as evidence that EI not only affects CA athletes but also correlates with each other. In addition, according to the findings of this study, it seems that EI can be one factor to be able to provide success for athletes in undergoing matches.

Subsequent findings obtained by researchers indicate that MT significantly influences CA. This finding is in line with the results of previous studies that found that MT was negatively related to CA, meaning that the higher the MT, the lower the CA, and vice versa (Hosseini et al., 2016). The results obtained from this study prove that there is an influence and relationship between MT and CA in athletes that can be seen from the athlete's performance when competing. Attributes such as self-confidence, motivation, concentration, and regulation of emotions can influence MT levels in athletes (Jones, Hanton, & Connaughton, 2007). The results obtained also provide information that MT can be a factor in achievement for athletes.

The results of this study also indicate that there is a significant influence between SC on CA. Other findings also obtained the same result that there was a negative influence between SC on CA in



athletes (Gould, Petlichkoff, & Weinberg, 1984). The results of these studies can be used as evidence that SC is a factor that can support the achievement of success by athletes. Furthermore, the researchers found that there was a significant effect of EI on PP. These findings are supported by research findings from Beedie, Terry, and Lane (2000) who find that EI has a direct effect on PP. The results obtained prove the truth of the theory that EI can affect the success of athletes when undergoing a match.

In addition, research from Moriya et al. (2011) suggested that there was an effect of EI on the performance of female basketball players athletes. The results of the study found that athletes who have good EI significantly influence the performance of athletes with high scores compared to the performance of athletes who have low scores. Low scores of athletes on EI will lead to suboptimal performance so that future researchers can create a program that can improve athletes' EI and have an effect on their performance in the competition (Ajayi & Fatokun, 2008). Furthermore, Petrides et al. (2006) suggested that there was a significant and positive relationship between EI and performance improvement. Laborde et al. (2016) suggested that there is a relationship between EI and athlete performance with various types of sports. However, different from the results of research conducted by Campbell and Ntobedzi (2007) suggest that there is no direct correlation between EI and CA.

The match played by athletes is very closely related to emotions. Athletes will always be faced with various kinds of stressors when diving a match in showing the best performance (Meyer & Fletcher, 2007). Stress in sports and in competition arises because there are more demands on athletes (Jones, 1995), for that athletes must be able to manage their emotions properly. The results of previous studies show that athlete performance is strongly influenced by EI (Friesen, et al., 2012; McCarthy, 2011). The athlete must then be able to know the feelings of his colleague and must cooperate and communicate well in achieving the best performance (Zizzi, et al., 2003). But first athletes must be able to recognize emotions in themselves, so they can manage them well in order to achieve maximum PP (Hanin & Stambulova, 2002).

Then the findings of the researchers also found that SC significantly influenced PP. The results obtained by researchers are similar to those obtained in general findings that athlete PP directly influences SC. Athletes who have a high SC, then PP in athletes will be successful and optimal (Zinsser, Bunker, & Williams, 2006). These results provide information that the findings from previous studies are consistent and also prove that SC can also be regarded as one of the factors that can determine the success of athletes. Further research reported by Burton (1988) found that there was an effect of SC on the performance of athletes with a contribution of 21%. Other results obtained that SC significantly influences the performance of athletes (Martin & Gill, 1991) long-distance runners and (Gould et al., 1987) shooters. However, the results obtained by researchers with previous studies that SC does not have an effect on athlete performance (Maynard & Cotton, 1993; Williams & Krane, 1992). The many differences in research results found by researchers with previous studies provide a lot of information related to athlete performance. However, this difference arises because of the influence of culture, age, gender, and type of exercise from each study. This will later also need to be considered and considered by future researchers.

The researchers' findings further found that there was a significant effect of CA on PP in athletes. This result is supported by previous research which also found the same results, namely the influence of CA on PP (Jokela & Hanin, 1999). Although there has been a lot of research developing about CA in athletes in sports, it

has not been able to explain thoroughly the changes in anxiety experienced by athletes (Smith, Bellamy, Collins, & Newell, 2001). Thus, the importance of gathering information about how anxiety changes in the match. Research conducted by Kais and Raudsepp (2004) who want to see the factors that can cause changes in anxiety for athletes is to use a multidimensional approach to obtain results that the dimensions of CA consisting of somatic and cognitive anxiety can affect PP in athletes. The findings of the researchers, supported by previous research can be used as a basis that CA is also an important factor in achieving success for athletes.

Research in sports psychology has largely discussed the emotional response of athletes to stressors and specifically to the CA study (Woodman & Hardy, 2001; Martens, et al., 1990;). CA is conceptualized as a multidimensional aspect (Smith, et al., 2006; Martens et al., 1990;), which is divided into three parts, namely cognitive anxiety, and somatic (Martens et al., 1990). Cognitive anxiety, namely the involvement of cognitive functions that assume that there is a possibility of failure. Somatic anxiety is more about the involvement of perception and an increase in negative arousal. Athletes really need good stability of anxiety, so they are able to work optimally. Athletes with high or low anxiety levels will be inversely proportional to the performance shown by athletes. This was obtained from the findings of Turner and Raglin (1996); Raglin & Hanin (2000) who found that the level of CA experienced by athletes will vary depending on how they interpret the stressors they face. The study from Humara (1999) suggests that in every match, it depends on how the athlete can control his anxiety level.

Bookani et al. (2015) found that athletes display their best performance if their anxiety is at a normal level. These results can be said that the good or bad performance displayed by athletes depends on the level of anxiety, both high and low anxiety levels. Martens, Vealey, & Burton (1990) also found that when the level of cognitive and somatic anxiety increases, so athletes experience failure in dealing with demands. The results of research that have been embarrassed by Wine (1971) suggest that there is a relationship between CA and athlete performance. Burton (1988) found that there is an influence of CA on the performance of athletes with a contribution of 46%. Previous studies found different results that CA had no effect on PP athletes (Vadocz et al., 1997; Maynard & Cotton, 1993).

The results obtained by researchers indicate that there is no significant effect between MT on PP. These findings differ from those obtained from previous studies which showed that MT has an effect on PP in athletes (Craft, Hungarian, Becker, & Feltz, 2003). Based on these results the researchers found new findings that the MT does not always have a direct effect on PP. Presumption from researchers that there are other variables that mediate MT against PP in athletes, one of which is CA. Researchers' assumptions related to the CA variable that mediates MT against PP, have been answered by the findings obtained that MT cannot influence PP directly, but must be mediated first by CA and then affect PP on athletes. MT can reduce the level of CA and build athlete self-confidence, thus producing maximum PP (Sheard, Golby, & Wersch, 2009). MTs with high levels of athletes tend to be able to control negative emotions that can repress CA when they want to compete, so athletes can achieve PP with optimal and brilliant achievement (Jones, et al., 2007). Furthermore, Craft et al. (2003) suggested that athletes must be able to identify and understand emotions, fiber can regulate it in order to achieve optimal PP.

The effect of CA mediation between MT on PP can also be explained further that mentally tough athletes are better able to control anxiety about defeat, and can fight stress with stressful situations in matches so

that athletes can achieve maximum performance (Thakur & Sharma, 2014). In addition, Loehr (1994) suggests that MT not only involves the physical component in achieving PP for athletes but also involves the emotional and psychological components. As from the results of previous research findings, it is known that MT plays an important role in determining the success of athletes (Mohamad, Omar-Fauzee, & Abu, 2009). However, the MT cannot directly influence the success of athletes, but rather there is an influence from other psychological attributes. MT in the context of sports appears as an attribute that can make athletes better personally, so they are able to overcome difficult competitive situations and make athletes perform excellence (Kumar, 2017). Based on the results of theoretical studies, findings from previous studies, and the findings of this study itself, the researcher can explain the dynamics that occur from the role or effect of mediating the attributes of CA shows that athletes with good MT, in essence, will be able to survive and through a variety of pressures that can reduce the level of anxiety before and during the competition, so that PP can be achieved to the maximum by the athletes.

Further explanation related to the mediating role of CA presented in the Javaid study, Ahmed, Ahmed and Sarwer (2016) suggested that if athletes were at optimal cognitive and somatic anxiety levels, SC and PP levels in athletes would obtain good results. However, if the athlete is at the level of cognitive and somatic anxiety below the optimal level, then SC and PP on the athlete will get bad results. Based on these results, it can be said that for athletes to be able to provide PP well, then athletes must have an optimal CA and also the SC in athletes is increasing. Therefore, SC in athletes both before and during the competition will show a lower CA, thus showing the higher performance (Craft, Hungarian, Becker, & Feltz, 2003). Previous studies also provide evidence that SC has a significant effect on PP athletes through CA (Parfitt & Pates, 1999; Hardy, 1996).

## **VI. Conclusion and Recommendation**

Based on research that has been done related to structural equation PP models in athletes it can be concluded that EI, MT, and SC significantly influence CA, and CA also significantly influences PP. In addition, the results of this study also showed that there was a significant influence between EI and SC on PP. However, the MT variable does not significantly influence PP. The results of this study also provide evidence that the role of CA as a mediating variable in maximizing the achievement of PP in athletes.

Suggestions for further research, in order to add variables that can contribute to the PP model in athletes such as self-adjustment and self-efficacy, so that the model that has been created produces more complete and accurate information. Then, it is also recommended for further research, it is expected to carry out a method of booting if there is a deviation of assumptions in SEM modeling and should use the SmartPLS program, because this program focuses more on nonparametric modeling that does not require assumption testing, using Partial Least Square and bootstrap methods.

## **VII. Research Implications**

Implementation from the results of this study, it is known that the achievement of PP athletes can be influenced by variables EI, MT, and SC. So that this can be used as a guide for a coach in an effort to achieve

PP athletes in every face of the match in order to produce achievements for athletes. In addition, the findings of this study help young athletes to achieve PP in every match, thus encouraging the success of young athletes to continue their careers and produce achievements. The results of the theoretical model of this study explain that EI, MT, and SC directly affect CA and PP, and CA affects PP. In addition, this study also explains the effect of CA that mediates EI, MT, and SC on the increase in PP in athletes.

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### Disclosure Statement

There is no potential conflict of interest presented in this study.

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