

Correlation of Intelligent Quotient, Emotional Quotient, and Adversity Quotient to Badminton Athletes' Achievement

Audina Sitiyas Widohari[✉], Donny Wira Yudha Kusuma, Sugiharto Sugiharto

Universitas Negeri Semarang, Indonesia

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Abstract

The background of this research is the difference of Intelligent Quotient, Emotional Quotient, and Adversity Quotient of badminton athletes in Semarang City on the achievements produced by athletes. The purpose of this study is to analyze and examine the interaction of Intelligent Quotient (IQ), Emotional Quotient (EQ), and Adversity Quotient (AQ) on the achievement results of badminton athletes in Semarang city. Correlational research design with cluster purposive sample technique. The instrument used by IQ is the Wonderlic Personnel Test (WPT) test. Questionnaire instruments were used to test EQ and AQ. The total subjects of this study were 71 badminton athletes in Semarang City, with the average age of 13.72 ± 0.959 years. The results showed that the results of the regression test for each variable obtained t-count IQ of 4.310, t-count EQ of 5.912, t-count AQ of 5.250 and sig all variable of <0.001 . Adversity intelligence has no significant effect on the achievement of badminton athletes.. The conclusion of this study is that Intelligent Quotient, Emotional Quotient, and Adversity Quotient have a significant correlation to the achievement of badminton athletes.

[✉] Correspondence address:
Kampus Pascasarjana UNNES Jl. Kelud Utara 3, Gajahmungkur
Semarang
E-mail: audinasitiyasw2students.unnes.ac.id

INTRODUCTION

Outstanding athletes have some supporting factors that influence athletes in achieving a sporting achievement. According to (Rahayu & Mulyana, 2015) that one of the assets for an athlete to be an excellent athlete and capable to achieve peak achievement in his sport sector is mental or psychological. In line with the opinion, Scroeter and Bauersfeld say that goal achievement is influenced by an internal factor, which consists of an athlete's psychological condition. Looking at various achievement factors, psychology always is the main factor in reaching an athlete's achievement, because basically a player who constantly trains both physically and technically, but not providing an opportunity to train thinking processes will result in the intellectual activities being undeveloped. Therefore, intelligence in reaching sport achievement is an important role (Anggraeni, 2012).

Personality role in sport psychology is very important to find out the personality description which is possessed by an athlete. Both male athlete or female athlete in individuals or groups are the athlete's uniqueness itself. They have the ability, the behavior pattern, and their own background that influences them in particular (Widyaningsih, Handayani, & Hidayah, 2018). Patience, courage, sportsmanship, self-confidence, motivation, emotional management, and mental imagery are psychological aspects that are very important in sport coaching and have to be trained from an early age.

Ironically, with the development of badminton sports achievements, especially at the Semarang City club level, there are many trainers that are hesitant to do psychological ability training. The reason is that the psychological aspect is too complex, unclear, and varied, so the trainer does not master how the psychological aspect can improve an athlete's achievement (Setyawati, 2014). Even though the athlete's psyche or mentality is an important factor in determining victory in badminton sports competitions. Where the badminton game has its own mental uniqueness. Like a single game, where the game emphasizes the independence of the

player and is fully responsible for the tactics they will do (Widyaningsih et al., 2018).

The mental or psychic toughness of outstanding athletes can be broadly drawn, that one of the factors which influences the formation of personality is genetic factors where the athletes can understand their own intelligence, emotional management intelligence, and the intelligence to face challenges (Agassi, 2011). Goleman 2000, p.46 in his research 80% was reached by the emotional intelligence factor (EQ) (Purnama, 2016). However, this factor is still becoming pros and cons among the experts (Focus online 2004), one of them is Gordon, he argues that the best method to improve the achievement is their intellectual intelligence intelektualnya (Purnama, 2016; Silen, 2014). Nonetheless, the athlete will reach maximum achievement if the intellectual and emotional intelligence is supported by Adversity intelligence (AQ) because adversity plays a role in the athlete's durability to confront the obstacles during competition (Sulastri, Salasa, Rahmi, & Andriyani, 2019).

PBSI Semarang City has 15 official clubs recorded as the accomplishment club in 2018 are PB. C-Plus Co, PB. Garuda Yuniar, PB. Mentari, PB. Altrec, PB. USM BC, PB. Pendowo, PB. Gatra, PB. USM Jaya, PB. Cendrawasih, PB. Hamas, PB. Arista, PB. Matahari Terbit, PB. Sehat, PB. SBC, and PB. Bintang Perkasa (Raka Wicaksono Budiarto, 2018: 2) The researcher's initial observations were based on the match chart "Main Bareng Kota Semarang" on March 29th to April 1st, 2021 to teenager male/female and beginner male/female single groups that took part in the competition grew into 19 clubs. The age range according to the PBSI is the age group of 15-16 years for teenagers and 13-14 years for beginners (Nugroho 2016). These two age groups, according to included in the category "teenager" because the experts say that the age of teenager is 12 to 21 years.

Adolescence is a mentally vulnerable age for athletes, As the age increases, the athlete's interest in participating in the competition decreases. This can be seen based on the match chart data "Main Bareng Kota Semarang Tahun 2021" in the beginner group, the number of athletes Who took part in the competition was 54 male and 22 female

and decreased to the teenagers group as many as 25 male athletes and 8 female athletes. This decline in participation interest was triggered by various factors. One of them rarely practices, according to the coach, because athletes are tired at school, when the start of training collides with school hours or compulsory extracurricular activities. However, this time the researchers tried to research 6 clubs in the city of Semarang with a total sample of 71 male and female athletes.

Intellectual intelligence and emotional intelligence are positively correlated with the result of learning, the result of study, and academic achievement akademik (Ardana Aritonang, & Dermawan 2013; Silen, 2014), there is no significant relationship between emotional intelligence and intellectual intelligence to athletes' achievement and the ability of badminton, so there must be other internal factors. Another internal factor that affects the athlete's achievement and correlates positively with intellectual intelligence and emotional intelligence is adversity intelligence (M. Effendi, 2016).

The factual condition of other badminton athletes is audience atmosphere, the differences between athlete flight time and other difficulties are when the competition can influence the athlete's confidence, motivation, and the quality of athlete's game in reaching achievement. It is because an athlete has not been able to fight the wit, tactic, motivation, stressed, determination, or other retard factors such as : Anxiety, tension, loss of concentration, and lack of self-confidence (Kusuma 2014).. That is, all these psychological problems are included in the components of intellectual intelligence, emotional intelligence, and adversity intelligence as a form of increasing the correlation of athlete achievement (Suranto, 2005; Fazari et al., 2017).

The assumption of researcher is related with before researches and the result of observation and also the interview that happened to youth athlete in Semarang city that this research intends to see the genetic psychology, namely the correlation of the three variables of intellectual intelligence, emotional intelligence, and adversity intelligence to the achievement of badminton athletes, especially in the city of Semarang. The purpose for this research is to provide insight to coaches /

athletes / other researchers as well as psychological scientists in compiling training programs related to psychology to further improve the performance of badminton athletes.

METHOD

The design of correlational research is that this type of research focuses on disclosing causal relationships between variables or often known as causal relationships. The causal variables of this study are Intellectual Intelligence (X1), Emotional Intelligence (X2), Adversity Intelligence (X3) on Achievement (Y).

The sample in this research is beginner group and teenager group (13-16 years old) badminton athletes Semarang City. PB Arista totaled 10 athletes, PB. Pendowo totaled 7 athletes, PB. C-Plus Co totaled 14 athletes, PB. TuguMuda totaled 8 athletes, PB. Gemilang totaled 17 athletes, PB. GatraPino totaled 15 athletes. Obtained 71 samples of badminton athletes in the city of Semarang. This test is done by giving the sample questions to be completed within 12 minutes.

The test consist of 50 questions containing the dimensions of following instructions, antonyms, vocabulary, word comparison, checking and speeding up, irregular sentences, deductive reasoning, math word problems, and number series. The items in the questionnaire are used to measure emotional intelligence and adversity intelligence, as for the alternative answer of these questionnaires using SkalaLikert.

In the category answer, there are two Likert scales, namely positive and negative. For the very appropriate category, the score was (positive) 4, (negative) 1. The appropriate category was scored (positive) 3, (negative) 2. In the unsuitable category, the score was (positive) 2, (negative) 3. The category was very unsuitable. value (positive) 1, (negative) 4.

The test used to measure emotional intelligence level is by using a questionnaire instrument from Erna Nurlatifa's thesis (2016). Questionnaire instrument has been validated based on the coefficient result *Alpha Cronbach* obtained ($\alpha = 0,896$) and can be concluded that the emotional

intelligence instrument has a very high reliability level.

The test used to measure the level of adversity intelligence is by using a questionnaire instrument from the thesis (Qodri, 2014) The questionnaire instrument has been validated. Based on the results of the Cronbach Alpha coefficient obtained ($\alpha = 0.873$) and the adversity

intelligence instrument has a good level of reliability.

Researching the achievements of adolescent badminton athletes throughout the city of Semarang is carried out by recapping the results of the achievements achieved during the last five years, because the variable data in this study are not the same in size, so for achievement the scoring is as follows:

Table 1. Athlete Achievement Scoring

Category	1	2	3-4	5-8	9-16	17-32	33-64
Cadets	200	170	140	110	80	50	20
Early Age	30	25.50	21	16.50	12	7.50	3
Beginner	60	51	43	33	24	15	6
Children	40	34	28	22	16	10	4
Teenager	100	85	70	55	40	25	10
Mature	300	225	210	165	120	75	30

Scoring Achivement Atletes in District/City Championship

Category	1	2	3-4	5-8	9-16	17-32	33-64
Cadets	500	425	350	275	200	125	50
Early Age	80	65	56	44	32	20	8
Beginner	300	255	210	165	120	75	30
Children	60	51	43	33	24	15	6
Teenager	150	127.50	105	82.50	60	37.50	15
Mature	900	765	630	495	360	225	90

Scoring Achivement Atletes in Province Championship

Data analysis was carried out by the prerequisite analysis test, namely the Normality Test (Kolmogorov Smirnov Test) and Variance Homogeneity Test (with Levene's Test). Normality test aims to determine whether the data used in the study came from a normally distributed sample or not. Homogeneity test aims to determine whether the variance in each group is homogeneous or not.

Hypothesis testing aims to determine whether there is a relationship between the independent variable and the dependent variable. After knowing the regression coefficient, it is possible to determine the effect of each independent variable on the dependent variable

based on the JK Regression (sum of the regression squares).

RESULT AND DISCUSSION

Analysis data uses IBM SPSS 20 variance analysis.

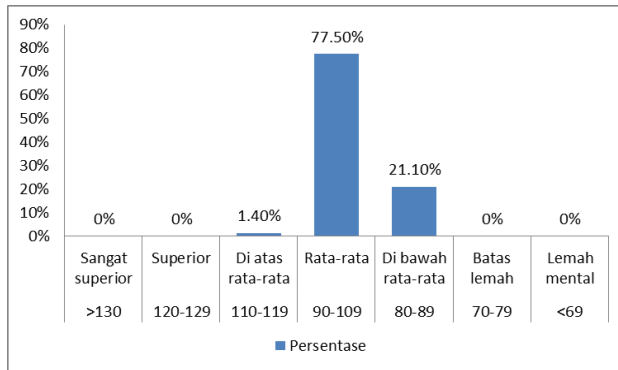
The Relationship of Intellectual Intelligence Quotient to Badminton Athletes' Achievement

The guide to the interpretation of the respondent's intellectual intelligence is based on the following table:

Table 2. The guide of IQ interpretation (X_1)

IQ Grade	Classification	Frequency	Percentage
>130	Very superior	0	0
120-129	Superior	0	0
110-119	Above Average	1	1.4
90-109	Average	55	77.5
80-89	Below Average	15	21.1
70-79	Weak Limit	0	0
<69	Mentally Weak	0	0
Total		71	100

The interpretation guide according to table 1 describes the level of intelligence (X_1) of the respondents, which can be seen in the following graph:



Picture 1. IQ level with sample n=7

It is known that most of the intellectual intelligence levels of badminton athletes in Semarang City aged 13-16 years are in the average category, namely 55 athletes or 77.50%, below the average having 15 athletes or 21.10%, above the average only having 1 athlete or 1.40%, and the results of 0% or none are in the very superior, superior, weak limit, and mentally weak categories. Regression analysis data processing produces output with the help of the SPSS 16 application program as follows:

Table 3. IQ Regression Analysis Calculation Results (X_1)

Model	Unstandardized Coefficients		Standardized Coefficients Beta	t	Sig.
	B	Std. Error			
1 (Constant)	-303.002	78.419		-3.864	<.001
IQ	3.567	.828	.461	4.310	<.001

a. Dependent Variable: Performance

The result of the output of the regression analysis calculation is that the value of constant (a) is -78,419 while the value of intellectual intelligence (b/regression coefficient) is 3.567.

The calculation of the curve above obtains sig <0.001 for the variable of intellectual intelligence or IQ (X_1), because the value of sig ($p < 0.05$, meaning that intellectual intelligence (X_1) has significant effect on the achievement of badminton athletes (Y).

Emotional Quotient Relationship to Badminton Athlete's Achievement

Field data related to the emotional intelligence of Semarang City athletes obtains an average score of "3" and "4". of 71 respondents obtained answers about Emotional Quotient (EQ). Response scores of 32 questions asked related to Emotional Quotient (EQ) resulted in the "Good" category.

Table 4. EQ Regression Analysis Calculation Results (X2)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-329.946	61.793		-5.340	<.001
	EQ	3.565	.603	.580	5.912	<.001

a. Dependent Variable: Performance

The result of regression analysis calculation *output* is known that the constant (a) value is - 61,793 while the emotional intelligence value (b/regression coefficient) is -3,565.

The calculation of the curve above obtains sig <0.001 for the variable of emotional intelligence or EQ (X2), because the value of sig (p<0.05, meaning that emotional intelligence (X2) has significant effect on the achievement of badminton athletes (Y).

The Relationship of Adversity Quotient to the Achievement of Badminton Athletes

Field data related to the adversity intelligence of athletes in Semarang City obtains an average score of “3”. Data on respondents’ score to the AQ test of 71 respondents obtained the answer about *Adversity Quotient* (AQ). The response scores of the 17 questions asked related to the Adversity Quotient (EQ) resulted in the "Good" category.

Table 5. AQ Regression Analysis Calculation Results (X3)

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-234.330	51.401		-4.559	<.001
	EQ	4.878	.929	.534	5.250	<.001

a. Dependent Variable: Performance

The result of the output of the regression analysis calculation is that the value of constant (a) is 51,401 while the value of adversity intelligence (b/regression coefficient) 4,878.

The calculation of the curve above obtains sig <0.001 for the variable of adversity intelligence or AQ (X3), because the value of sig (p<0.05, meaning that adversity intelligence (X2) has significant effect on the achievement of badminton athletes (Y).

Interaction of IQ, EQ, and AQ on the Achievement Results of Badminton Athletes

Simultaneous hypothesis testing is hypothesis testing which aims to determine whether simulation/the independent variable (independent) has no significant effect or not on the dependent variable (dependent). The result of hypothesis testing simultaneously using are as follows:

Table 6. Simultaneous Hypothesis Testing (F-Test)

ANOVAa						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	67619.583	3	22539.861	12.999	<.001b
	Residual	116172.388	67	1733.916		
	Total	183791.972	70			

a. Dependent Variable: Prestasi Bulutangkis

b. Predictors: (Constant), AQ, IQ, EQ

It is known that F_{count} value is 12,999 with *p-value* (sig) 0,000. Value $\alpha = 0,05$ and the degrees of

freedom $v_1 = 3$ and $v_2 = (n - (k + 1)) = 71 - (3+1) = 67$ Diketahui nilai F_{hitung} sebesar 12,999 dengan *p-*

value (sig) 0,000. Nilai $\alpha = 0,05$ sertaderajatkebebasan $v_1 = 3$ dan $v_2 = (n - (k + 1)) = 71 - (3+1) = 67$, then $F_{table} = 2.742$, because the value of $F_{count} > F_{table}$ ($12,999 > 2.742$) then H_0 is rejected, meaning that Intelligent Quotient (X_1), Emotional Quotient (X_2), and Adversity Quotient (X_3) together have a significant effect on the achievement of badminton athletes (Y).

DISCUSSION

According to the theory There are the relationships related to intellectual intelligence with the achievement of badminton. The supporting aspect of the athlete's performance comes from the level of the athlete's IQ (Intelligence quotient). Athletes who have a good IQ will adapt more quickly to their opponent's playing patterns and field conditions so that they can concentrate more easily and avoid anxiety when competing, but in reality the field is different due to various other factors.

This study shows that there is no significant relationship between IQ and badminton athlete achievement, so this is understandable because the most likely intellectual intelligence athletes in Semarang City are less trained or when doing IQ tests the athletes are less serious. The results of this study are in line with research (Kurniawan, Pramono, & Rumini, 2020) on the Contribution of IQ (Intelligent Quotient), EQ (Emotional Quotient), and Motor Educability on the Ability to Perform Tactics in Football Games at SSB Garuda Muda Majenang. In addition, Mirabelle's Wonderlic test scores in (Bowman, Boone, Goldman, Auerbach, & Bowman, 2021) did not significantly predict performance outcomes in sports.

Mental coaching or EQ is carried out so that athletes are able to practice concentration and self-control in critical situations, athletes can make decisions and take good self-coordination. This study is in line with research by (Aggraeni, 2013), which states that there is no significant relationship between emotional intelligence and the achievements of the XVIII PON pencak silat athletes.

In theory, the adversity quotient is divided into three forms; 1). As a new conceptual framework for understanding and improving all

facets of success, 2). A measure to find out the response to difficulties that we actually already have far subconsciously, 3). A series of tools that have a scientific basis to improve the response to difficulties that result in self-efficacy and professionalism (Verawati, 2015) So the adversity intelligence still needs to be trained so that the athletes can further develop their own potential and succeed to maximize their achievement.

Another internal factor which affects an athlete's achievement and collaborates positively with intellectual intelligence and emotional intelligence is adversity intelligence (M. Effendi, 2016) Therefore, when these three factors are linked, it will produce a significant relationship to the achievement of badminton athletes in Semarang City.

CONCLUSION

The concluded that each variable when described there is no significant correlation between IQ (*Intelligent Quotient*) on athlete achievement. There is no significant correlation between EQ (*Emotional Quotient*) on athlete achievement. There is no significant correlation between AQ (*Adversity Quotient*) on athlete achievement. In contrast, There here is a significant correlation if the variables together are *Intelligent Quotient* (IQ), *Emotional Quotient* (EQ), and *Adversity Quotient* (AQ) on the achievements of badminton athletes in Semarang City.

REFERENCES

- Agassi, V. (2011). Kecerdasan Intelektual Pada Atlet Berprestasi Dalam Popda Sd Kabupaten Temanggung. *Skripsi*.
- Aggraeni, Y. (2013). Kontribusi IQ (intelligent quotient) dan EQ (emotional quotient) terhadap prestasi atlet pelatdapencak silat pada PON ke-XVIII tahun 2012. *Jurnal Phederal Penjas*, 1(1), 1–13.
- Ardana, I. C., Aritonang, L. R., & Dermawan, E. S. (2013). Kecerdasan Intelektual, Kecerdasan Emosional, Kecerdasan Spiritual Dan Kesehatan Fisik Untuk Memprediksi Prestasi Belajar Mahasiswa Akuntansi. *Jurnal Akuntansi*, XVII(3), 444–458.
- Bowman, J. K., Boone, R. T., Goldman, S., Auerbach, A., & Bowman, J. K. (2021). The Athletic

- Intelligence Quotient and Performance Outcomes in Professional Baseball. *Journal Psychology*, 12(June), 1–8.
- Effendi, M. (2016). Correlation between Adversity Quotient (AQ) with IQ, EQ and SQ Among Polytechnic Students Using Rasch Model. *Indian Journal of Science and Technology*, 9(47), 1–8.
- Fazari, M., Damayanti, I., & Rahayu, N. I. (2017). Hubungan Kecerdasan Intelektual (Iq) Dan Kecerdasan Emosional (Eq) Dengan Keterampilan Bermain Dalam Cabang Olahraga Bulutangkis. *Jurnal Terapan Ilmu Keolahragaan*, 2(1), 33–37.
- Karlina, L. (2020). Fenomena Terjadinya Kenakalan Remaja. *Jurnal Edukasi Nonformal*, 1(2), 1–12.
- Kurniawan, W., Pramono, H., & Rumini. (2020). Effects of Intelligence Quotient, Emotional Quotient, and Motor Educability on Players Ability to Tact in Soccer Games. *Journal of Physical Education and Sports*, 9(1), 44–49.
- Nugroho, A. (2016). Pengembangan tes keterampilan servis pendek bulutangkis untuk atlet kelompok anak-anak, pemula, remaja dan taruna. *Jurnal Pengembangan Keterampilan*, 1–7.
- Purnama, I. M. (2016). Pengaruh Kecerdasan Emosional dan Minat Belajar Terhadap Prestasi Belajar Matematika di SMAN Jakarta Selatan. *Jurnal Ilmiah Pendidikan MIPA*, 6(3), 233–245.
- Qodri, N. M. (2014). Kontribusi Kecerdasan Adversitas, Kemampuan Interpersonal, Dan Tingkat Harapan Kerja Terhadap Penguasaan Kompetensi Instalasi Dasar Listrik Siswa Kelas Xii Teknik Instalasi Tenaga Listrik Smkn 1 SEDAYU. In UNY.
- Rahayu, E., & Mulyana, O. P. (2015). Hubungan antara Goal-Setting dan Motivasi Berprestasi dengan Prestasi Atlet Renang. *Character: Jurnal Penelitian Psikologi*, 3(2), 1–5.
- Raka Wicaksono Budiarto. (2018). Hubungan antara dukungan social orangtua dengan motivasi berprestasi pada atlet bulutangkis di Kota Semarang. *Skripsi*, 1–8.
- Setiyawan, S. (2017). Kepribadian Atlet Dan Non Atlet. *Jendela Olahraga*, 2(1).
- Setyawati, H. (2014). Strategi Intervensi Peningkatan Rasa Percaya Diri Melalui Imagery Training Pada Atlet Wushu Jawa Tengah. *Journal of Physical Education Health and Sport*, 1(1), 48–59.
- Silen, A. P. (2014). Pengaruh Kecerdasan Intelektual, Kecerdasan Emosional Dan Kecerdasan Spiritual Terhadap Prestasi Akademik. *Jurnal Bisnis Dan Ekonomi (JBE)*, 21(2), 116–133.
- Sulastri, A., Salasa, S., Rahmi, U., & Andriyani, Y. D. (2019). Injury Incident Rate Impact toward Adversity Quotient of Female Futsal Athletes. *Journal Atlantis Press*, 11(Icsshpe 2018), 157–159.
- Verawati, I. (2015). Adversity Quotient sebagai Salah Satu Aspek dalam Keberhasilan Prestasi Atlet. *Journal Penerapan IPTEK*.
- Widyaningsih, W. W., Handayani, O. W. K., & Hidayah, T. (2018). The relationship between personality of single and double athletes of badminton toward achievement level in P.B. Djarum. *Journal of Physical Education and Sports*, 7(1), 1–6.