

## An analysis of Indonesian student-level boxing athletes: What Effect Does Competition Anxiety Have on Self-Efficacy?

### Un análisis de los estudiantes indonesios de boxeo ¿Qué efecto tiene la ansiedad ante la competición en la autoeficacia?

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**Abstract.** This study aims to analyze the effect of self-efficacy on competition anxiety in boxing athletes at the student level. The sample consists of boxing athletes in the Special Region of Yogyakarta Province and South Kalimantan Province, with 130 athletes (95 male, 35 female) who will compete at the Regional Student Sports Week in 2024. The characteristics of the boxers were aged 15-18, had  $3.1 \pm 0.7$  years of training experience, have a minimum  $8.7 \pm 4.2$  and maximum  $10.3 \pm 2.2$  hours of training in a week. Self-efficacy instrument used Endurance Sport Self-Efficacy Scale (ESSES) questionnaire, and competition anxiety used Competitive State Anxiety Inventory-2 Revised (CSAI-2R) questionnaire. This study showed a significant negative effect between self-efficacy and anxiety to compete in boxing athletes ( $t -7.870$  and  $p < 0.05$ ) and  $R^2$ , which is 38.1%. It can be concluded that the direction of negative correlation means that if the self-efficacy of athletes is high, the anxiety of athletes before the match is low. Athletes are expected to always believe in their ability to perform at their best when competing. Future research needs to investigate how psychological interventions can influence the interpretation of the direction of anxiety symptoms among boxing athletes.

**Keywords:** Self-efficacy, competition anxiety, boxing

**Resumen.** Este estudio pretende analizar el efecto de la autoeficacia sobre la ansiedad de competición en atletas de boxeo a nivel estudiantil. La muestra está formada por atletas de boxeo de la Región Especial de la Provincia de Yogyakarta y la Provincia de Kalimantan del Sur, con 130 atletas (95 hombres, 35 mujeres) que competirán en la Semana Regional del Deporte Estudiantil en 2024. Las características de los boxeadores tenían entre 15 y 18 años,  $3,1 \pm 0,7$  años de experiencia en entrenamiento, un mínimo de  $8,7 \pm 4,2$  y un máximo de  $10,3 \pm 2,2$  horas de entrenamiento a la semana. Como instrumento de autoeficacia se utilizó el cuestionario Endurance Sport Self-Efficacy Scale (ESSES), y como instrumento de ansiedad ante la competición se utilizó el cuestionario Competitive State Anxiety Inventory-2 Revised (CSAI-2R). Este estudio mostró un efecto negativo significativo entre la autoeficacia y la ansiedad para competir en los atletas de boxeo (cuenta  $t -7,870$  y  $p < 0,05$ ) y  $R^2$ , que es del 38,1%. Se puede concluir que la dirección de la correlación negativa significa que, si la autoeficacia de los deportistas es alta, la ansiedad de los deportistas antes del combate es baja. Se espera que los deportistas crean siempre en su capacidad para rendir al máximo cuando compiten. Futuras investigaciones deberán estudiar cómo pueden influir las intervenciones psicológicas en la interpretación de la dirección de los síntomas de ansiedad entre los deportistas de boxeo.

**Palabras clave:** Autoeficacia, ansiedad ante la competición, boxeo

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### Introduction

Boxing is a sport and martial art featuring two equal-weight participants. According to the class, the participants compete using boxing or punches in a series of matches with 1 x 3-minute intervals called rounds (Prayoga et al., 2024). Boxing requires physical contact, so the existing friction can create many possibilities (Prabowo et al, 2024). Contact sports can provoke emotions feelings among athletes (Potoczny et al., 2022; Prabowo et al , 2024). The emotional turmoil experienced by athletes can affect the performance of the competition, thus having an impact on the athlete's performance (Robazza et al., 2023; Amaro & Brandão, 2023; Jannah et al., 2023; Karmakar & Ghosh, 2023; Yue et al., 2023). The success of a boxing athlete in achieving his achievements cannot be separated from the mental condition of the athlete. The findings of the study reported that psychological aspects contributed more to the success of athletes in fighting sports when competing, This is evidenced by the fact that combat sports athletes who win will

prepare mentally long before the competition arrives during the preparation period. (Andrade et al., 2021; Santana et al., 2023; Prosoli et al., 2023). A good and healthy athlete's mental state will be able to affect the athlete's performance in achieving achievements (Sun et al., 2021; Obaid Aziz et al., 2022; Razzaq Nema, 2022).

The mental aspect that often appears before the game is anxiety (Shaman et al., 2022; Zhang, 2023; Brandão & Amaro, 2023). Anxiety is a mixed feeling between fear and worry about the future without any specific cause of fear. Competition anxiety is a state of distress experienced by an athlete, namely a negative emotional condition that increases along with how an athlete interprets and assesses the competition situation (Jansen et al., 2021; Jermaina et al., 2022; Tamminen et al., 2021). The perception of athletes in determining the situation and conditions when facing a match, either long before the match or close to the match, will cause a different reaction. If the athlete perceives the situation and conditions of the match as something threatening, then the athlete will feel stressed and experience

anxiety. (Adi et al., 2024; Casali et al., 2022; Syaiful & Kardi, 2024). Anxiety in facing matches occurs due to psychological pressure from coaches, spectators, and opponents during matches (T. I. Lee et al., 2022; Nova et al., 2021; Sin et al., 2020). The psychological respond to anxiety can be feelings of tension, anxiety, irritability, and uncomfortable feelings. Moreover, the physiological response includes the feeling of cold sweat, increased blood pressure, and heart palpitations (Sridana et al., 2024). Anxiety symptoms include excessive perspiration, a racing heartbeat, cold, sweaty hands, dry lips, lightheadedness, tingling in the hands and feet, frequent urination, gastrointestinal pain (such as diarrhea), and uneven breathing (La Fratta et al., 2021; T. I. Lee et al., 2022; de Oliveira et al., 2022). Research studies that explain anxiety in boxing are still sparsely conducted, or there have been reports of scientific evidence, but experienced or professional boxing athletes conducted these studies. There is limited research on boxing athletes who want a career at the amateur level.

A study conducted by Alejo et al (2020) shows that anxiety before competition is one of the psychological factors that can significantly affect athlete performance, especially in individual sports such as boxing. The research results conducted by Bisa (2020) showed that psychological factors in the form of anxiety affect both directly and indirectly the peak performance of a boxer. Interview studies revealed that anxiety resulted in aggressive behavior in boxers at a young age and puberty. However, they did not occur when boxers had highly competitive experiences (Bugavsky et al., 2020). There are, of course, differences in the research results on individual sports, especially martial arts, judo, fencing, taekwondo, pencak silat, and karate. The anxiety level reached 32% compared to team sports, which reached 22%, although there was no significant difference through independent t-tests (Kemarlat et al., 2022). The initial investigations at boxing gyms showed that many athletes who had careers at the amateur level in the junior (aged 15–16) and youth (aged 17–18) categories felt symptoms of anxiety. They admitted that the anxiety was marked by the body feeling cold, tense and stiff, legs shaking, and excessive urination. Also, a lack of fighting experience caused the anxiety, or it was their first boxing competition. Another factor is because of the official rule of amateur boxing in Indonesia which says that the minimum age for competitive matches is 15 years old.

For athletes who are too anxious when facing a match, expectations that should be easy to achieve become difficult. Various efforts have been made to achieve success for athletes to reduce the obstacles posed by competition anxiety. Self-efficacy will be an excellent asset for athletes because confidence requires them to exert all their strengths and abilities, which will encourage them to achieve optimal achievement (Martin & Gill, 2016; Reigal et al., 2020; Durović et al., 2021). Self-efficacy really supports athletes in achieving success in competition (Dimiyati et al., 2023; Mercader-Rubio et al., 2023; Tang et al., 2022). Decreased or lost self-efficacy can result in athletes performing below

their ability. For this reason, athletes do not need to doubt their ability if they have trained seriously and have experience participating in many competitions. The purpose of this study is to investigate the effect of self-efficacy on anxiety in boxing athletes at the age of 15–18 who are competitively competing. The publication of the results of this study will provide insight into how boxing academics, trainers, and boxers who are studying at the sports faculty pay attention to the anxiety of athletes who will start a career as boxers at a young age. Lack of confidence in athletes will not support high achievement. Lack of self-confidence also means doubting her/his abilities and tendencies.

## Methods

### Research Design

This research is quantitative, with an analysis using a regression test; the purpose is to analyze how the effect occurs between the two variables. The self-efficacy variable is an independent variable, and the competition anxiety variable is a dependent variable. Thus, this study will examine the theory of self-efficacy and the theory of competition anxiety based on the type of boxing sport, especially in student-level athletes. The first stage of this research is to observe the training site, namely the gym, to formulate and identify research problems. Then, preliminary data includes the boxers competing at the provincial level, boxer characteristics, and training experience. The second stage is the preparation of instruments using FGD (forum group discussion).

The third stage, data collection, is carried out in the pre-competition stage. Data collection is in the form of an online questionnaire using google form. The data collection procedure is that the online questionnaire is distributed two days before the competition starts. Then the boxer is asked to send back the questionnaire during the weigh-in session. So that during match time, boxers only focus on the match. The fourth stage is the preparation of the article manuscript until revision, if required.

### Participants

The sample used was 130 boxing athletes in the Special Region of Yogyakarta Province and South Kalimantan Province. The athletes in this study will compete at the provincial level at the Student Sports Week. All athletes competing at the Provincial level are boxers who have won student boxing competitions at the city or district level.

Boxer characteristics (mean±SD), aged  $17.2 \pm 6.6$ , have  $3.1 \pm 0.7$  years of training experience, have minimum  $8.7 \pm 4.2$  hours and a maximum of  $10.3 \pm 2.2$  hours of training in a week. Boxers who will compete at the Provincial level must comply with the requirement that boxers have never competed at the national level or senior level. So that 130 boxers who will compete have the same experience, namely the student level at the Provincial level.

### Instrument

The instrument used to measure self-efficacy and

competitive anxiety is a questionnaire. The scale to measure self-efficacy is the Endurance Sport Self-Efficacy Scale (ESSES) developed by (Anstiss et al., 2018), refers to the theory (Bandura et al., 1999). The scale consists of 11

items. Dimensions in the scale are unidimensional. The reliability of the scale is 0.88. On this scale, answer choices range from 0-100 points. Initial interval 0 (cannot), 50 (pretty sure can), 100 (very sure can).

Table 1.  
Endurance Sport Self-Efficacy Scale (ESSES) instrument grid

Variable	Indicator	Question	Item
Self Efficacy	Individual belief in their abilities, belief in overcoming obstacles or tasks	Coping with pain unrelated to injury	1
		Ensure proper technique and strategy	2
		Managing emotions during the match	3
		Overcoming pain due to injury	4
		Controlling the mind during the match	5
		Overcoming unforeseen situations in the match	6
		Manage physical abilities well	7
		Facing uncertain temperatures in a competitive environment	8
		Maintain concentration during the match	9
		Put on the best performance in challenging matches	10
		Overcoming the feeling of being overwhelmed by the effort and energy that has been put in	11
Total			11

The scale to measure competitive anxiety is the Competitive State Anxiety Inventory-2 Revised scale (CSAI-2R), which was revised by (Cox et al., 2003) from the CSAI 2 measuring instrument developed by (Martens et al., 1990). The aspects are cognitive, somatic, and confident. The researcher translated the scale into Indonesian with the help of a translation agent. The reliability of the scale is 0.88. It consists of 17 items. On this scale, there are four answer choices: Most Agree (4), Agree (3), Disagree (2) and Least Agree (1).

### Statistical technique

Simple descriptive statistics with N, Minimum, Maximum, Mean and Std. Deviation were calculated for all the variables. To check the normality of the data before applying the regression test, Kolmogorov-Smirnov test was applied. Further, simple linear regression analysis test was applied to investigate the effect occurrence between the variables. Furthermore, R Square test was employed to find the coefficient of determination (R<sup>2</sup>) of the effect of self-efficacy with anxiety of competing in boxing athletes. For all the statistical test, SPSS version 27 was employed and the level of significance was set at 0.05.

Table 2.  
Competitive State Anxiety Inventory-2 Revised (CSAI-2R) instrument grid

Variable	Aspect	Question	Item
Match anxiety	Cognitive	I'm worried that I won't be able to compete in the competition as it should be	1
		I'm worried about losing	2
		I worry and feel pressured during the match	3
		I'm worried about playing badly	4
		I'm worried that other people will be disappointed with my performance	5
	Somatic	I feel nervous	6
		My body is tense	7
		My stomach is tense during the match	8
		My heart is beating fast	9
		My stomach feels bloated	10
		My hands are sweaty	11
		My body feels stiff	12
	Confidence	I feel confident	13
		I'm sure I can face the challenge	14
		I feel confident that I can compete well	15
		I feel confident because I imagine myself	16
		I managed to reach my goal	16
I'm sure that I can deal with pressure	17		
Jumlah			17

## Results

Before applying the regression test, the normality test was first carried out to test whether the data of the current study was feasible to continue with the regression test. The result of the normality test is displayed in Table 3. Based on Table 3, the results of the data from the self-efficacy variable showed a significance value of 0.126 ( $p > 0.05$ ). The data from the match anxiety variable showed a significance value of 0.097 ( $p > 0.05$ ). From these results, the two variables are normally distributed so that they are feasible for further testing. The results of descriptive statistical analysis of self-efficacy with competing anxiety of boxing athletes are.

In this descriptive statistical analysis, based on the calculation of the mean and standard deviation results, then divided into four categories based on the minimum - maximum results. So that there are four categories, namely very low, low, high, very high. Based on Table 4, it can be seen that Self-Efficacy has an average of 432.00, this result shows presented in Table 4.

Table 3.  
Normality test results

	Kolmogorov-Smirnova		
	Statistic	df	Sig.
Self-Efficacy	0.328	130	0.126
Match Anxiety	0.143	130	0.097

Table 4.  
Statistical descriptive analysis results

	N	Minimum	Maximum	Mean	Std. Deviation
Self-Efficacy	130	340.00	700.00	432.00	66.81
Match Anxiety	130	35.00	53.00	42.98	4.70

That Self-Efficacy is in the low category. Competitive anxiety has an average of 42.98; this result shows that competitive anxiety is in the high category.

The results of a simple linear analysis of the effect of self-efficacy with competing anxiety in boxing athletes are presented in Table 5:

Table 5.  
Results of linear regression analysis

Model	Coefficients <sup>a</sup>			t	Sig.	
	Unstandardized Coefficients		Standardized Coefficients			
	B	Std. Error	Beta			
1	(Constant)	56.291	3.479		16.182	0.000
	Self-Efficacy	-0.081	0.038	-0.438	-7.870	0.000

a, Dependent Variable: Match Anxiety

Based on Table 5 above, a simple linear regression equation can be determined as follows:

Competitive anxiety (Y) = 56.291 – 0.081 Self-efficacy (X)

The results of the interpretation of the simple regression equation above are as follows:

The constant is 56.291, which means that if the self-efficacy variable (X) is equal to zero, then the competitive anxiety variable (Y) is only 56.291.

The self-efficacy regression coefficient (X) obtained a value of 0.081; it can be interpreted that if Self-Efficacy (X)

increases, the Comparative Anxiety (Y) will decrease by 0.081. Based on the results of the analysis, it can be seen that the  $t -7,870$  and the significance of  $0.000 < 0.05$ , then  $H_0$  is rejected, meaning that "there is a negative and significant effect of self-efficacy on the anxiety of competing in junior boxing athletes." The regression coefficient is negative, meaning that competition anxiety decrease if athletes have high self-efficacy.

The coefficient of determination (R<sup>2</sup>) of the effect of self-efficacy with anxiety of competing in boxing athletes is the result of the analysis in Table 6.

Table 6.  
R Square test results

Model	R	Model Summary		
		R Square	Adjusted R Square	Std. Error of the Estimate
1	0.617a	0.381	0.374	5.25384

a, Predictors: (Constant), Match Anxiety

The coefficient of determination of R Square or Self-Efficacy (X) in explaining or predicting the competitive anxiety variable (Y) is 0.381 or 38.10%. It means that the contribution of self-efficacy to anxiety competes in boxing athletes by 38.10%, while the rest is influenced by other factors by 61.90% outside of the study. Other variables that affect motivation are physical, technical, and achievement.

## Discussion

The results of the study showed that the negative and significant influence of self-efficacy on competition anxiety in high-level boxing athletes. These results are supported by research on futsal, handball, basketball, football and water polo which shows a negative relationship between self-efficacy and competition anxiety (Aliyyah et al., 2020; Reigal et al., 2020; Peng & Zhang, 2021; Durović et al., 2021). The results of other research were also proven at the student level, namely that there was an indirect negative influence between self-efficacy and somatic anxiety (Mercader-Rubio et al., 2023). Then, the results of a survey comparing 100 athletes with 100 non-athletes showed that self-efficacy in athletes was far more than that of 100 non-athletes, even though, in reality, the anxiety levels in athletes and non-athletes were the same (Hatami, 2023). Stronger self-efficacy will make a person's way of thinking and acting more positive (Wibowo et al., 2024). If an individual has a negative perception of himself, it will cause anxiety in various situations. High self-efficacy ability will make athletes strive to be more active; multiple studies show that the quality of individuals will increase along with the growth of self-efficacy (S. Lee et al., 2021). This opinion is also appropriate for boxing athletes who train in the gym. The results of qualitative analysis explain that boxers experience increased self-efficacy from the training experience, representative experience, and verbal persuasion they receive during training (Case & Christophe, 2019). Self-efficacy is related to the extent to which individuals can assess their abilities, potentials, and tendencies to be integrated into certain actions in

overcoming situations that may be faced to reduce feelings of anxiety while competing.

Achievement ability and motivation in athletes are closely related to self-efficacy problems (Knight, 2020; Rogowska et al., 2022; Tušák et al., 2022). Furthermore, a high level of self-efficacy can also reduce emotional issues including social self-esteem and anxiety management. Symptoms of psychological aspects that affect achievement can be developed in athletes, some of which are self-efficacy and anxiety. Anxiety is a subjective feeling of fear and physiological arousal (Shaman et al., 2022). Athletes who experience anxiety when competing will experience increased levels of excitement, feelings of tension, and fear. Reducing anxiety can reduce the pressure from competitive conditions so that self-efficacy becomes one factor that influences competitive anxiety (Peng & Zhang, 2021; HATAMÍ, 2023; Mercader-Rubio et al., 2023). Self-efficacy is the main capital of an athlete in order to display his maximum performance (Adam & Faridah, 2021; Setiawan et al., 2023; Adam & Faridah, 2021; Setiawan et al., 2023). Self-efficacy is an attitude or a feeling of confidence in one's abilities so that the person concerned is not too anxious in acting, feels free to do things as he wants and is responsible for his actions, is warm and polite in interacting with others, has the urge to participate and can recognize their strengths and weaknesses (Tang et al., 2022; S. Lee et al., 2021; Mercader-Rubio et al., 2023). An athlete who has confidence will always feel himself as a positive individual and has the potential to contribute and cooperate with others in various segments of life (Adam & Faridah, 2021).

Self-efficacy athletes always think positively about giving their all and allow self-confidence to grow that they can accomplish so that their performance stays strong. (Durović et al., 2021). Self-efficacy is the main capital for boxers to achieve maximum achievement. Athletes who have self-efficacy always think positively about showing their best and let self-confidence arise that they are able to do so that their performance remains good (Stanković et al., 2022). Boxers who can optimize their self-confidence can overcome the problems they face (Case & Christophe, 2019). The level of self-efficacy of a person in each task varies greatly. It is due to several factors that affect the perception of individual abilities. An athlete's level of self-efficacy can be improved and influenced by the nature of the task facing the individual: the external incentives (rewards) the individual receives from others, the individual's status, or role in his or her environment, and information about self-efficacy (Koçak, 2020; Adam & Faridah, 2021). Self-efficacy can be cultivated and learned through four things, namely mastery experience, exemplary social behavior, social persuasion, and the physical and emotional condition of the individual (Case & Christophe, 2019; Setiawan et al., 2023). A factor to pay attention to is strong emotions that which usually decrease performance. When someone experiences strong fear, acute anxiety, or high levels of stress, they tend to have low self-efficacy expectations.

Overall, the researcher realizes this study still has many

shortcomings, especially in its implementation. The analysis was conducted to the maximum extent possible, but not apart from the existing limitations. The limitation of the study is that the data collection is only based on the results of the online questionnaire, so there may be fewer objective elements in filling out the questionnaire. It is expected that the publication of these results of study can provide a deeper insight for boxing-specific academics, coaches, and boxers who will start a career at the amateur level to become professional athletes.

## Conclusion

From the results of this study, it was revealed that the effect of self-efficacy on the competition anxiety of boxers at the student level was 38.1%. Then, the results of the t table showed a negative value, meaning that if self-efficacy increases, competition anxiety will decrease. Anxiety is a natural thing, if it is not excessive, because it can be a self-defense mechanism against external threats, but if it is excessive, it will disrupt the stability of the individual. The findings of this study provide a strong evidence base for using psychological interventions to help reduce competition anxiety in boxers at the learner level. Future research needs to investigate how psychological interventions can influence the interpretation of the direction of anxiety symptoms among boxing athletes. It also needs to dig the information on how to build athlete self-efficacy, especially in competitions, namely reawakening memories of previous successes, considering that the efforts made to achieve success in the past mean that the efforts made to be able to repeat them, do not worry too much about the mistakes that have been made so that they can do self-assessment. Athletes are expected to always believe in their ability to perform at their best when competing.

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## Conflict Of Interest

This study contains no material that could be considered a conflict of interest by the authors

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