

The effect of service quality on the safety of boxing athletes' training in Indonesia

Trisnar Adi Prabowo^{1*}, Endang Rini Sukamti¹, Fauzi¹, Tomoliyus¹, Awan Hariono¹

¹ Department of Sport and Health Sciences, Yogyakarta State University, Indonesia.

* Correspondence: Trisnar Adi Prabowo; trisnaradi.2022@student.uny.ac.id

ABSTRACT

This descriptive correlational study aimed at investigating the correlation between service quality and training safety, elucidating the significance of service quality in ensuring the safety of boxing athletes during their training. The study used a Structural Equation Model (SEM) approach. The data was collected from 220 boxers, averaging an age of 21 ± 2.0 years and possessing an average training experience of 8 ± 0.8 years. The data analysis in this research utilized the assistance of Smart PLS. Researchers categorized service quality variables into five distinct factors: tangible, empathy, reliability, responsiveness, and assurance. Safety variables were divided into two categories: health and comfort. This categorization resulted in a total of 25 indicators reflected in the questionnaire results. The outcomes of hypothesis testing indicate significant relationships: tangible and empathy factors significantly impact both health and comfort, while reliability and responsiveness notably influence comfort. Additionally, the factor of assurance demonstrates a substantial influence on health ($p < 0.05$). However, there were observations where reliability and responsiveness did not exhibit a significant impact on health, and assurance did not significantly affect comfort ($p > 0.05$). These instances suggest a lack of statistical relationship between the independent and dependent variables in these specific cases. The training facilities used by boxers must pay attention to the level of safety by improving the quality of service from the club or organization. The results of this research are expected to be a reference for sports practitioners, academics, facility owners or sports clubs, to pay more attention to service quality to increase safety when practicing. Further research is expected to ensure that training safety variables can be studied in more detail by developing special instruments and larger specific populations, especially combat sports.

KEYWORDS

Service Quality; Safety Training; Boxing Athletes

1. INTRODUCTION

Combat sports are sports that involve physical contact. One martial arts sport involving physical contact is boxing (Kapo et al., 2021). Therefore, physical contact sports must pay attention to the safety of their athletes, especially when practicing. Training safety for boxing athletes is paramount because boxing is a challenging sport that can result in serious injuries (Zetterberg et al., 2019; Razaghi & Biglari, 2020). To avoid injury, boxers must train safely (Shovkiddin et al., 2020). One way to avoid injury is by using a protective pacifier. Therefore, every athlete must wear protective equipment for boxing sports bogies (Damiano et al., 2022). Many factors influence the safety of boxing athletes when training. Among the training safety factors are the condition of the facilities in the training place (Maciá et al., 2021), the trainer's competency regarding understanding safety in training and the behaviour of friends when do sparring partner (Stiller et al., 2014; Follmer et al., 2020).

However, in reality, many boxing training facilities in Indonesia need to meet safety standards for training. Based on observations of boxing training facilities and unstructured interviews with boxers in Indonesia, many facilities do not meet standards, such as uneven floors, lack of training equipment, medical equipment, minimal air ventilation and light, etc. Then, safety in training cannot be created between coaches and athletes alone. There is a need for other support, such as sports organizations that play a direct role in fulfilling training safety standards by improving the quality of service in each gym/boxing club (Syrlybayev et al., 2020). Other research also explains that the factor that can influence athlete performance is good service quality (Günel & Duyan, 2020; Putro et al., 2020; Givi et al., 2021; Robles et al., 2022). Apart from that, boxers assume that the services provided to boxers are already provided every year. However, boxers are still not satisfied. Therefore, the importance of good quality service can provide satisfaction to boxers so that boxers can train comfortably and safely (Calesco & Both, 2019; Calesco & Both, 2021).

Further research explains that good service quality regarding safety can increase the quality of people's welfare for exercising (Zakaria et al., 2016). Good service quality can also increase safety in a sports competition (Oueslati et al., 2017). Then, sports facilities at the club/gym that are of good quality and safe to use for training can provide positive emotions for customers (Dang et al., 2022). However, other research regarding service quality and training safety has yet to be studied, especially in boxing. Therefore, by paying attention to the quality of service for training safety facilities, boxers can train optimally and be ready to face competition (Lumintuarso et al., 2021).

This research investigates the correlation between service quality and training safety, elucidating the significance of service quality in ensuring the safety of boxing athletes during their training. Conducting this research holds immense importance and urgency to enhance service quality, subsequently reducing the risk of injuries or accidents among boxing athletes.

2. METHODS

2.1. Study Design and Participants

This was a descriptive correlational study that analyzed the impact of service quality on the safety of practicing boxing athletes. The population in this study consisted of boxers from across Indonesia. However, we selected specific criteria for boxers to complete this study. These criteria encompassed boxers who were slated to compete in the 2023 Pre-PON qualifying round. PON refers to the National Sports Week in Indonesia, which occurs every four years. The data for this research was collected from 220 boxers, averaging an age of 21 ± 2.0 years and possessing an average training experience of 8 ± 0.8 years. This research was conducted during January – February 2023.

2.2. Instrument

The instrument item grid was developed from several previous studies. We divided each variable, namely the service quality variable into five categories (tangible, empathy, reliability, responsiveness and assurance) (Table 1), and the practice safety variable into two categories (health and safety) (Table 2). Each variable is divided so that the value of each independent and dependent relationship is more detailed. All items were measured using a 5-point Likert scale, ranging from 1 (strongly disagree) to 5 (strongly agree).

Items on service quality (tangible, empathy, reliability, responsiveness and assurance), we developed from several previous studies (Martono, 2019; Putro et al., 2020; Nugroho et al., 2021). Meanwhile, for practice safety items (health and safety), researchers modified the statement items based on previous research (Mamashli et al., 2019; Maciá et al., 2021; Wang et al., 2021). This research uses a questionnaire that experts in the academic sector have validated through FGD (forum group discussion) and minor revisions are recommended. So it produces 25 items. Then, it was distributed via Google Form.

Table 1. Service Quality Instrument

Service Quality	Number Item
Tangible (X1) The training facilities at the club are in good condition.	1

	The training facilities at the club are clean and comfortable	2
	Athlete training equipment appropriate to the competition	3
Empathy (X2)	The relationship among officials, coaches, and athletes is good	4
	Officials and coaches pay attention to athletes' training needs	5
	Officials and coaches can establish good relationships with athletes' schools/universities/agencies	6
Reliability (X3)	Assistance provided to athletes routinely	7
	The athlete's training program is by the requirements for the competition	8
	More help when athletes compete	9
Responsiveness (X4)	The trainer always supervises and provides instructions from start to finish end of practice	10
	Quick in handling the problem of damaged athlete training equipment	11
	Respond quickly to suggestions from athletes and coaches to improve performance	12
Assurance (X5)	Get insurance when athletes suffer injuries as a result of training	13
	Provide protective equipment for sparring	14
	Medical equipment available	15

Table 2. Training Safety Instrument

Training Safety		Number Item
Health (X1)	Enough lighting	1
	Lots of air ventilation	2
	The tools used are environmentally friendly, clean and hygienic	3
	Wide room for comfort	4
	The air condition in the room is good	5
Comfort (X2)	Free from noise	6
	The building structure is solid and sturdy	7
	The building floor is neat and has no holes	8
	Ease of access to all training areas	9
	There are no sharp or dangerous objects	10

2.3. Data Analysis

This research data analysis used a structural equation model (SEM) approach which is assisted by smart PLS version 4.0 application as a data analysis tool to estimate research model

parameters and correlation between indicators and variables. This research has five independent variables and two dependent variables looking for value from cause-effect relationships. The stages of data analysis in this research are:

1) Measurement model stage (outer model test)

This stage is carried out to test the validity and reliability of each indicator. The validity test in this study used convergent validity by correlating item scores (component scores) with construct scores which then produced loading factor values. The instrument is declared valid if the Average Variance Extracted (AVE) value is > 0.05 and the loading factor value is > 0.6 . After the validity test is carried out, a reliability test was carried out to determine the instrument's reliability. Measuring the level of reliability in this study uses the alpha or Cronbach alpha coefficient and composite reliability, an item is declared reliable if it has a coefficient value > 0.6 .

2) Structural model test stage (inner model test)

This was a hypothesis testing stage that aimed to determine whether there is an influence between variables or correlation between constructs measured using Smart PLS. The structural model or inner model is measured by looking at the r-square, which shows how big the influence is between the variables in the model. Then proceed with estimating the path coefficient obtained using the bootstrapping procedure with values considered significant if the p-values < 0.05 .

3. RESULTS AND DISCUSSION

3.1. Validity Test Result

The validity test functions to measure the validity of the questionnaire. This research used convergent validity and AVE to conduct a validity test. The instrument is declared valid if the AVE value is > 0.05 and the outer loading value is (0.7) (Table 3).

Table 3. Validity test Result

Variable	Indicator Code	AVE	Outer Loading	Description
Tangible (X1)	TAN1	0.702	0.811	Valid
	TAN2		0.887	Valid
	TAN2		0.814	Valid
Empathy (X2)	EMP1	0.699	0.847	Valid
	EMP2		0.781	Valid
	EMP2		0.877	Valid

Reliability (X3)	REL1	0.681	0.823	Valid
	REL2		0.837	Valid
	REL3		0.816	Valid
Responsiveness (X4)	RES1	0.728	0.866	Valid
	RES2		0.758	Valid
	RES3		0.928	Valid
Assurance (X5)	ASS1	0.677	0.823	Valid
	ASS2		0.751	Valid
	ASS3		0.889	Valid
Health (Y1)	KES1	0.738	0.836	Valid
	KES2		0.880	Valid
	KES3		0.871	Valid
	KES4		0.854	Valid
	KES5		0.855	Valid
Comfort (Y2)	NYM1	0.808	0.880	Valid
	NYM2		0.910	Valid
	NYM3		0.895	Valid
	NYM4		0.917	Valid
	NYM5		0.893	Valid

3.2. Reliability Test Result

In this research, the author used two types of reliability: Cronbach's Alpha and Composite Reliability tests. Cronbach Alpha measures the reliability of the lowest value (lower limit). Data is declared good if it has a Cronbach alpha value > 0.6 . Meanwhile, composite reliability measures the actual reliability value of a variable. Data is declared to have high reliability if it has a composite reliability value > 0.7 (Table 4).

Table 4. Reliability Test Result

Variable	Cronbach's Alpha	rho_A	Composite Reliability
Tangible (X1)	0.787	0.792	0.876
Empathy (X2)	0.784	0.795	0.874
Reliability (X3)	0.766	0.768	0.865
Responsiveness (X4)	0.813	0.861	0.889
Assurance (X5)	0.760	0.764	0.862
Health (Y1)	0.911	0.912	0.934
Comfort (Y2)	0.941	0.941	0.955

Based on the calculations carried out, it is known that all instrument items are reliable with all

variables having a Cronbach Alpha score > 0.6 and Composite Reliability > 0.7.

In Figure 1, the correlation between indicators and variables is depicted.

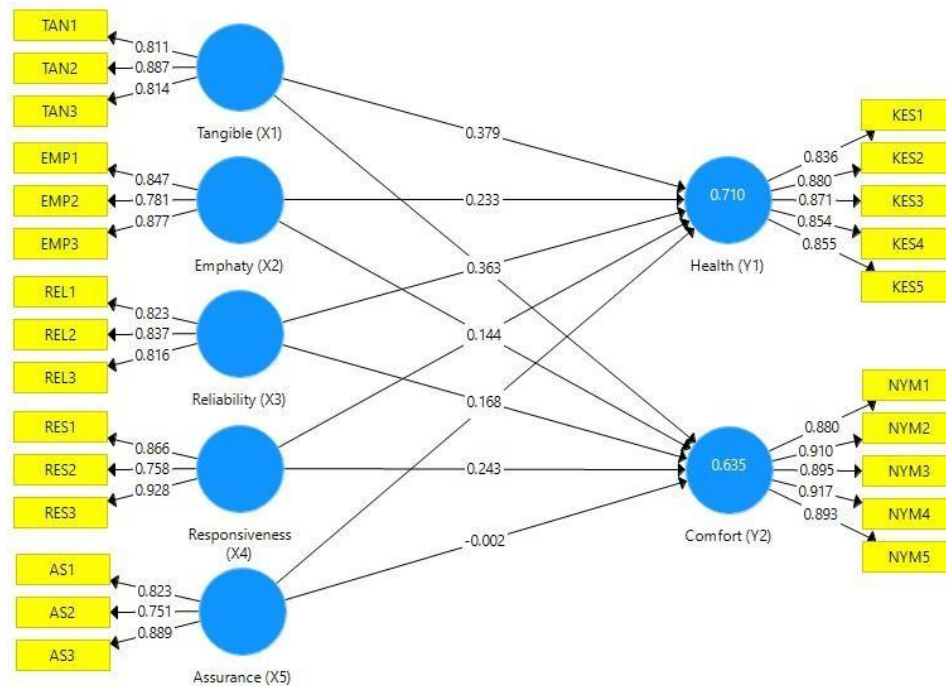


Figure 1. Relationship between indicators and variables

3.3. Inner Test Model

The coefficient of determination (R-Square) measures how much other variables influence an endogenous variable. The R-Square value was obtained based on data analysis using the smart PLS program, as shown in the following table (Table 5).

Table 5. Inner Model Test Result

	R Square	Adjusted R Square
Health (Y1)	0.710	0.703
Comfort (Y2)	0.635	0.626

3.4. Hypotheses testing

In the hypothesis testing section, Table 6 displays the comprehensive results derived from the analysis conducted to assess the validity of the proposed hypotheses.

Table 6. Hypothesis Results

Original Sample (O)	Sample Mean (M)	Standard Deviation	T Statistics ((O/STDEV))	P Values
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	(STDEV)				
Tangible (X1) - > Health (Y1)	0.379	0.377	0.081	4.681	0.000
Tangible (X1) - > Comfort (Y2)	0.363	0.363	0.086	4.213	0.000
Emphaty (X2) - > Health (Y1)	0.233	0.230	0.060	3.895	0.000
Emphaty (X2) - > Comfort (Y2)	0.144	0.139	0.061	2.363	0.019
Reliability (X3) -> Health (Y1)	0.108	0.107	0.056	1.923	0.055
Reliability (X3) -> Comfort (Y2)	0.168	0.168	0.065	2.565	0.011
Responsiveness (X4) -> Health (Y1)	0.042	0.048	0.048	0.871	0.384
Responsiveness (X4) -> Comfort (Y2)	0.243	0.252	0.059	4.131	0.000
Assurance (X5) -> Health (Y1)	0.186	0.186	0.066	2.800	0.005
Assurance (X5) -> Comfort (Y2)	-0.002	-0.007	0.077	0.027	0.979

As we can see from Table 6, the results of testing the first hypothesis, namely the tangible relationship (service quality) to health (safety of training), obtained short p values of 0.000 ($p < 0.05$) producing a significant positive effect. Therefore, the hypothesis that tangible (service quality) significantly influences health (safety of training) is accepted. The results of testing the second hypothesis, namely the tangible relationship (service quality) to comfort (training safety), obtained a p Values score of 0.000 ($p < 0.05$), producing a significant positive effect. Therefore, the hypothesis that (service quality) significantly influences comfort (safety of training) is accepted. Facilities and equipment are tangible indicator items in this research. Good, clean and comfortable facilities are then supported by training equipment that is suitable for the competition, so boxers can feel the effects of safe training (Li & Li, 2021; Gallardo-Guerrero et al., 2021; Gallardo et al., 2022). Adequate facilities such as training buildings, boxing rings, indoor conditions, and ventilation must follow good exercise standards. Then equipment other than boxing training equipment that must be provided includes health boxes, weight scales, tools. fitness test or boxing ability test.

The results obtained from testing the third hypothesis reveal a significant positive effect,

indicating the relationship between empathy (regarding service quality) and health (pertaining to training safety). The findings exhibited remarkably low p-values of 0.000 ($p < 0.05$), underscoring the statistical significance of this relationship. Therefore, the hypothesis that empathy (service quality) significantly influences health (safety of training) is accepted. The results of testing the fourth hypothesis, namely the relationship between empathy (service quality) and comfort (safety of training), obtained a p value score of 0.019 ($p < 0.05$), producing a significant positive effect. Therefore, the hypothesis that empathy (service quality) significantly influences comfort (safety of practice) is accepted. The relationship between coaches and officials towards boxers is an empathy item in this research. A good relationship between coaches and officials towards boxers includes a moral relationship. A moral relationship with a coach or official can provide a sense of confidence and reduce anxiety for boxers (Šukys et al., 2017). Then another sense of empathy is paying attention to all the boxer's needs and relationships with schools, universities or athlete employment agencies. The higher the empathy given to the boxer, the more positive the boxer will feel when training (Jeong & Kim, 2020).

The results of testing the fifth hypothesis, namely the relationship between reliability (quality of service) and health (safety of practice), obtained a p value score of 0.055 ($p < 0.05$), resulting in no effect. Therefore, the hypothesis that reliability (service quality) significantly influences health (safety of practice) is rejected. The results of testing the sixth hypothesis, namely the relationship between reliability (service quality) and comfort (safety of practice), obtained a p value of 0.011 ($p < 0.05$), producing a significant positive effect. Therefore, the hypothesis that reliability (service quality) significantly influences comfort (safety of practice) is accepted. The assistance boxers provide during training or competition and training programs are reliability items in this research. Boxers' assistance varies, such as materials, bonuses, training equipment, and emotional support.

Meanwhile, the training program must, of course, be in accordance with the competition that will be held. So the assistance provided must also be right on target so that boxers can feel safe when training (Wilson & Millar, 2021; Ahmed & Fine, 2021). However, Prabowo et al. (2022) research explains that most Indonesian boxers need supplements. Of course, most boxers get these supplements from the help of KONI (Indonesian National Sports Committee) administrators, officials and coaches. Because boxers in Indonesia still have difficulty losing weight (Prabowo, et al., 2022; Prabowo et al., 2023). It is hoped that with increased assistance in service quality, boxers can improve their performance.

The results of testing the seventh hypothesis are the relationship between responsiveness

(service quality) and health (safety of training) obtained a p value of 0.384 ($p < 0.05$) resulting in no significant positive effect. Therefore, the hypothesis that responsiveness (service quality) significantly influences health (safety of training) is rejected. The results of testing the eighth hypothesis, namely the relationship between responsiveness (quality of service) and comfort (safety of training), obtained a value score of 0.000 ($p < 0.05$), producing a significant positive effect. Therefore, the hypothesis that responsiveness (service quality) significantly influences comfort (safety of training) is accepted. Speed in responding to problems and suggestions from athletes indicates responsiveness in service quality. Fast response and good handling are important values so boxers are not anxious when training (Morquecho-Sánchez et al., 2021). Then a good response also makes athletes feel respected and recognized for their existence as athletes. Because with good responses, boxers can give their best performance during training. So that boxers can feel comfortable and safe in training during training. Of course, good practice will influence on performance. The results of testing the ninth hypothesis are the relationship between assurance (service quality) and influence the boxer's performance.

The results of testing the ninth hypothesis, namely the relationship between assurance (service quality) and health (safety of training), obtained a p value of 0.005 ($p < 0.05$), producing a significant positive effect. Therefore, the hypothesis that assurance (service quality) significantly influences health (safety of training) is accepted. The results of testing the tenth hypothesis, namely the relationship between assurance (service quality) and comfort (safety of training), obtained a p Values score of 0.979 ($p < 0.05$), resulting in no significant positive influence. Therefore, the hypothesis that assurance (service quality) significantly influences comfort (safety of training) is rejected. The availability and completeness of medical equipment and vital protective equipment is an indicator item for assurance in service quality. With complete medical equipment and vital protective equipment, boxers can provide better performances when boxers have sparring partners (Iona et al., 2019; MacIntosh et al., 2020). However, boxers also need safety guarantees such as insurance which can be used if the boxer suffers an injury during training, a match or outside of training activities, namely an accident. From the results of this research, it is hoped that all sports organisation coaches, officials or administrators can provide good service to athletes as sports with hard physical contact, namely martial arts, pose a high risk of danger during training or competition.

4. CONCLUSIONS

There were 220 Indonesian amateur boxers involved in this research, and it was found that tangible and empathy affected health and comfort (training safety), reliability and responsiveness affected comfort, and assurance had an effect on health scores ($p < 0.05$). Meanwhile, the relationship between reliability and responsiveness to health and assurance to comfort received a score of ($p > 0.05$), meaning there is no relationship or influence. The importance of the results of this research is that it pays attention to the safety level of boxers through good service quality. Good quality service is not enough to provide training facilities, a gym, or training equipment. However, by meeting the needs expected by boxing athletes, such as complete and sophisticated training facilities, complete medical equipment, closeness from coaches or officials, assistance that boxers want and guaranteed safety. It is hoped that the results of this research can be a reference for sports practitioners, academics, sports facility or club owners, coaches and athletes to pay more attention to service quality to increase safety when training so that athletes can achieve their maximum performance. Further research is hoped to ensure that training safety variables can be studied in more detail by developing special instruments and more specific populations, especially combat sports.

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CONFLICTS OF INTEREST

The authors declare no conflict of interest.

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