

# Self-Efficacy of Volleyball Referees in Shanxi, China

Hui Li<sup>1</sup>, Rodil F. Fadri<sup>2</sup>

<sup>1</sup>Lecturer, Shanxi Jinzhong Institute of Technology

<sup>2</sup>Lecturer, Adamson University

## Abstract:

This convergent-parallel mixed method study assessed referee self-efficacy and explored the experiences of volleyball referees in Shanxi, China. In measuring self-efficacy, the study used a standard scale comprising game knowledge, decision-making, pressure, and communication. The quantitative and qualitative findings converged in many areas of referee self-efficacy.

**Keywords:** volleyball, referee, self-efficacy

## Introduction

Competitive sport is one of many standards which indicate the development level of a country [1]. In China, the government emphasizes that the relationship between sports and economic society should be treated with dialectical thinking. According to Liu [2], sports are a source of power to promote economic and social development and a key force for social wealth. The Chinese leadership regards sports as a key component of sustainable economic and social development [3]. In 2021, the Chinese government directed sports agencies to promote reform, develop the sports competition market, and build distinctive sports event brands [4]. China's approach to competitive sports has made them a perennial powerhouse in international events like the Olympics. It also led to the flourishing of many commercial and professional leagues in the country like the Chinese Volleyball Super League. With the high popularity of the league, referees are under pressure to deliver excellent officiating.

In sports officiating, self-efficacy is an important factor influencing the performance, behaviors, satisfaction, and stress of sports officials. Self-efficacy is well studied in many non-sports settings, but self-efficacy in sports officiating still lacks broad understanding including the popular sport of volleyball. It reflects the fact that refereeing is scarcely studied by researchers [5], [6]. According to Karacam and Pular [7], sports referees' self-efficacy is the degree to which they believe in their ability to officiate games successfully. Based on the study of Meyers et al. [8], referee self-efficacy is composed of game knowledge, decision-making, pressure, and communication. This model of self-efficacy has been applied to referees in basketball [7], football [9], and handball [10]. In volleyball, the applicability of this model was further established by Diaotaiuit et al. [11] in a large-scale quantitative study involving international referees.

The knowledge of the game is represented by the confidence that the referees have in their knowledge of the rules of the sport and its strategies [12]. On the other hand, the decision-making process corresponds to the referees' confidence in making decisions quickly. According to Arslanoglu et al. [13], the referees who manage the mental process correctly will be more successful in decision-making and thinking styles. Pressure in the game is also an element of self-efficacy among referees. Good esteem and a strong

character are needed by the referees to withstand the pressure during and after the game. The referees who can manage the pressure well have less difficulty in officiating. Referees with good communication with players, staff, and other sports officials have higher self-efficacy also.

Knowing the self-efficacy of volleyball referees can help improve their training. At present, some studies have pinpointed weak points in their self-efficacy. In the study of Diaotaiuit et al. [11] and Saridede [14], it was found that volleyball referees have very high game knowledge, high decision making, and communication like football referees [15] but handling pressure is relatively low. It ranked last among the four domains of self-efficacy. Self-efficacy among referees also differs based on gender, level of education, and level of experience [16]. According to Dereceli et al. [9] years of experience increase the decision-making ability. It is, however, not evident in the study of Diaotaiuit et al. [11]. In the study of Kural and Aydin [15] it was found that self-efficacy in terms of game knowledge and decision-making is significantly different in terms of age. Moreover, decision-making is also significantly different across the various refereeing levels or categories [17]. The differences in self-efficacies of referees in volleyball and other sports have implications for their training.

The self-efficacy of volleyball referees as presented by different studies varies. Different groups of respondents would exhibit varying levels of self-efficacy and contradicting correlations at times. It implies that self-efficacy must be more specific in certain locales. What may be true with Western volleyball referees does not apply to the Chinese context. Given this situation, the study sought to assess the self-efficacy of Chinese volleyball referees. The study also explored their experiences related to their refereeing career.

The study is anchored on Bandura's self-efficacy theory which was later renamed social cognitive theory. The theory posits that one's perception of the ability to perform a particular behavior is derived from four processes including cognitive, motivational, affective, and selection process. As explained by Shorey and Lopez [18], Bandura's self-efficacy can be derived from mastery of experiences, and the variety of experiences. Self-efficacy is also influenced by the person's belief that they can succeed. They can even alter their negative thought and emotions to boost their belief that they have what it takes to be successful.

## Method

The study used the convergent parallel mixed method of research. It fits best the objective of the study which is to assess the self-efficacy of Chinese volleyball referees analyze its variations based on the respondents' profile, and explore the referees' experiences in their sports officiating journeys. Using the said method enabled the researcher to gather quantifiable data to describe the self-efficacy of volleyball referees, and provide additional perspective to the quantitative findings through the qualitative analysis of the referees' experiences. According to Creswell & Creswell [19], convergent mixed method designs enable the researcher to compare quantitative and qualitative findings to see if they confirm or disconfirm each other.

The respondents of the study were the referees in a volleyball association in Shanxi, China. For the quantitative part of the study, 84 referee members of the association were selected randomly from the population of 106. For the qualitative part of the study, 10 participants were purposively selected. They were national-level category referees, had at least five years of officiating experience, and had experience in officiating national or international volleyball tournaments.

The survey questionnaire used in the study was adopted from Myers et al. [8] Referee Self-Efficacy Scale. It is a 13-item scale divided into four subscales: knowledge, decision-making, pressure, and

communication. Each item is provided a five-point Likert-type response. The validity and reliability of the instrument have been established in studies conducted by Diaotaiuti et al. [11] involving international volleyball referees.

The Kruskal-Wallis H test and Mann-Whitney U test were used to determine whether there is a significant difference in the self-efficacy of the respondents in terms of knowledge, decision-making, pressure, and communication based on their profile variables. The use of ranks instead of means in the comparative analysis was based on the non-normality of the data. The Shapiro-Wilk Test yielded a sig = .000 which implies that the data were not normally distributed. The results of the analysis were evaluated at the .05 level of significance.

For the qualitative part, the interviews were analyzed using Braun and Clarke's [20] thematic procedure. First, the interviews were transcribed. It was read and re-read by the researcher for familiarization. Coding followed where significant statements from the interview transcripts were identified. Once coding was done for the entire data set, patterns within the different codes were analyzed relative to their meaningfulness in answering the qualitative research questions. The recurrence of the codes was given importance. The non-recurring codes were not considered in forming the themes.

## Results and Discussion

**Table 1: Assessment of Referee Self-Efficacy**

Domains	Mean	SD	Interpretation
Game knowledge	4.29	0.56	High Self-efficacy
Decision-making	4.29	0.54	High Self-efficacy
Pressure	4.42	0.60	High Self-efficacy
Communication	4.49	0.49	High Self-efficacy
Overall	4.37		High Self-efficacy

Table 1 presents the respondents' overall assessment of self-efficacy in refereeing volleyball games. They have high self-efficacy in all the sub-variables with communication getting the highest mean with 4.49. On the other hand, game knowledge and decision-making got the lowest mean with 4.29 apiece. Overall, the self-efficacy of the respondents is high with a mean of 4.37. It shows that the respondents believe that they are more than capable of refereeing volleyball games. It implies that they can deliver a highly effective officiating performance. The finding is very similar to what was reported by Spencer [21] about the self-efficacy of American volleyball referees. The American referees have high self-efficacy in all the sub-variables of game knowledge, decision-making, pressure, and communication. The finding is also similar to what was revealed by Diaotaiuti et al. [11], and Saridede [14]. It was found that volleyball referees have very high self-efficacy in-game knowledge, and high self-efficacy in decision making, pressure and communication. The respondents' high overall referee self-efficacy indicates their strong belief that they have what it takes to be effective in their jobs. As stated by Karacam & Canli [22], referee self-efficacy is the belief that one has the skills, knowledge, and self-confidence required for doing their tasks effectively. Given the respondents' high self-efficacy, it is expected that they will deliver a good officiating performance. As revealed by Karacam and Adiguzel [23], the performance of referees with high self-efficacy levels is also high.

**Table 2: Difference in Referee Self-Efficacy Based on Age**

	Kruskal-Wallis H	df	Sig	Interpretation
Game knowledge	2.09	3	.544	Not Significant
Decision-making	1.52	3	.678	Not Significant
Pressure	0.19	3	.980	Not Significant
Communication	1.36	3	.715	Not Significant
Overall Self-Efficacy	0.18	3	.991	Not Significant

Table 2 shows that there is no significant difference in the game knowledge (Sig =.544), decision-making (Sig =.678), pressure (0.980), communication (Sig =.715), and overall self-efficacy (Sig =.991) of the respondents based on age. The finding implies that age had nothing to do with the referee self-efficacy of the respondents. It is possible because the respondents started their refereeing careers at different ages. Some started right after graduation in college while others played more years in varsity teams or national teams before undergoing training to become a referee. Their age, therefore is not an indicator of skills, knowledge, and confidence gained in their officiating career. The finding partly contradicts what was found out by Kural and Aydin [15]. They reported that football referees have significantly different self-efficacy in-game knowledge and decision-making based on age.

**Table 3: Difference in Referee Self-Efficacy Based on Years of Experience**

	Kruskal-Wallis H	df	Sig	Interpretation
Game knowledge	1.55	3	.670	Not Significant
Decision-making	1.15	3	.766	Not Significant
Pressure	2.52	3	.472	Not Significant
Communication	1.27	3	.737	Not Significant
Overall Self-Efficacy	1.19	3	.756	Not Significant

The table shows that there is no significant difference in the game knowledge (Sig =.670), decision-making (Sig =.766), pressure (Sig =0.472), communication (Sig =.737), and overall self-efficacy (Sig =.756) based on the respondents' years of experience. It is possible because a year of experience does not necessarily translate to the same amount of exposure to games and training for every respondent. Some respondents may have shorter years of experience but that could be full of opportunities for actual game officiating and training. The finding is different from what was found out by Diaotaiuit et al. [11]. In their study of international volleyball referees' self-efficacy, it was revealed that there is a significant difference in self-efficacy in-game knowledge and communication. The referees with higher years of experience have a greater perception of self-efficacy in knowledge and communication.

**Table 4: Difference in Self-Efficacy Based on Highest Educational Attainment**

	Mann-Whitney U	Sig	Interpretation
Game knowledge	1011.50	.285	Not Significant
Decision-making	1020.00	.310	Not Significant

Pressure	1122.50	.774	Not Significant
Communication	1147.50	.915	Not Significant
Overall Self-Efficacy	1116.00	.746	Not Significant

Table 4 presents the results of the Mann-Whitney U Test which determined whether there is a significant difference in the self-efficacy of the respondents based on their highest educational attainment. There were two groups only in this category, those with bachelor's degrees, and those with master's degrees. It showed that there is no significant difference in the game knowledge (Sig =.285), decision-making (Sig =.310), pressure (0.774), communication (Sig =.915), and overall self-efficacy (Sig =.746) of the two groups. The finding shows that the highest educational attainment of the respondents had nothing to do with their self-efficacy in-game knowledge, decision-making, pressure, and communication. Those with master's degrees do not have a clear advantage over those with bachelor's degrees only when it comes to volleyball refereeing. The finding is different from what was established by Diaotaiuit et al. [11]. They showed that international volleyball referees with higher levels of education have statistically higher self-efficacy in pressure and communication. The study of Kural and Aydin [15] about the self-efficacy of football players conforms with the findings of the present study. They revealed that high school graduate referees and college graduate referees have no significant difference in self-efficacy in-game knowledge, decision-making, pressure, and communication.

**Table 5: Thematic Analysis of Volleyball Referees' Experiences**

Theme	Interpretation	Representative Quote	Source
Kick-starting with college volleyball	Playing volleyball in college	"It started in college, as a volleyball player"	P2
		" I have been a player in college, then became a volleyball teacher, and referee."	P3
	Studying volleyball in college	"I began to participate in referee work after attending referee training undergraduate." "When I was in college, I learned volleyball referee under the guidance of my teacher."	P8 P5
Continuous Enhancement of referee skills	Attending referee training	"Participate in training and learning." "Referee training can improve the understanding and operation of the rules."	P5 P2
		Learning through experience	"Many years of volleyball experience has led to mastery and familiarity of rules." "More participation in officiating of the game."
	Learning from colleagues	"Practical exchange of insights with colleagues after the match." "Sharing the situation encountered in the process of execution with my colleagues."	P1 P3
Striving for the best performance	Preparing for games	"Planning scene control of the site for management of the actual game." "Preparation meeting with other referees before the game".	P6 P4

	Handling pressure	“Adjusting mindset after a mistake.” “Continuously accumulate confidence.”	P1 P6
	Quick decisions	“Improvement of immediate response.” “Advance prediction and quick reaction .”	P3 P5

Legend: P (participant)

Table 5 shows the participants’ descriptions of their experiences in volleyball officiating in three themes: kick-starting with college volleyball, continuous enhancement of refereeing skills, and striving for the best performance. Most of the participants talked about their engagement in college volleyball as the start of their officiating careers. The participants also describe their journey as a life of continuous enhancement of officiating skills. All of the participants went through training that elevated their status as national referees. The training provided them with mastery of volleyball rules. It also allowed them to test their game knowledge and get practical experience and provided them with solid basic skills and familiarity with rules and judgment. The participants’ journey of continuous skills enhancement is also attributed to learning from colleagues. They learned from colleagues through sharing of insights after games, and sharing of experiences regarding peculiar game situations. The participants' volleyball officiating journey is also described as striving for the best performance. It involves preparing for games, handling pressure, and making quick decisions. They conduct site inspections ahead of the game to plan a scene or visual control for the actual match. Moreover, they conduct meetings with other referees before the game. It is to ensure coordination among them during the match. The referees also recognize the need to be quick and accurate in officiating.

The quantitative and qualitative findings converge on the three sub-variables of referee self-efficacy. The assessment of referee self-efficacy showed a high level of game knowledge, pressure, and decision-making. On the other hand, the qualitative finding showed that the participants' desire to enhance their skills continuously and to deliver their best performance in officiating also centered on game knowledge, handling pressure, and being quick and accurate in decision-making.

**Conclusion**

The study has shown that the respondents have a strong belief that their referee self-efficacy is more than adequate to perform their officiating tasks effectively. Despite the differences in age, years of experience, and educational attainment, the respondents are likely to perform at the same level given the statistically similar self-efficacy levels. More importantly, it showed that the high referee self-efficacy in terms of game knowledge, decision-making, and pressure is connected to the experiences of continuous skills enhancement, and striving for best officiating performance. It implies that building referee self-efficacy is a deliberate effort.

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