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Analysis of Video Assistant Referee (VAR) Technology Effectiveness in Correcting and Supporting Decisive Refereeing Decisions in the Iraqi Stars Football League 2024/2025 Season

***Ahmed Jalal Ibrahim[1], Ali Sabah Adday[2], Ali Hussein[3]**

*Corresponding Author: Ahmed Jalal Ibrahim, e-mail: ahmedjalal@uokirkuk.edu.iq
[1]Kirkuk University, Iraq
[2]Al-Nahrain University, Iraq
[3]Salahaddin University, Iraq

Abstract

Objectives: This study aimed to analyze the effectiveness of Video Assistant Referee (VAR) technology in correcting and supporting decisive refereeing decisions in the Iraqi Stars Football League during the 2024/2025 season.

Materials and Methods: This study used a descriptive analytical method. The research population consisted of 28 referees accredited by the Iraqi Football Association and licensed to officiate matches using VAR technology. The sample included 280 decisive refereeing cases reviewed through VAR intervention, including penalty kicks, red cards, goals, mistaken identity, and other discretionary cases. Data were collected through official referee reports, VAR analysis forms, and official match video recordings. Data were analyzed using percentages, mean, standard deviation, Pearson correlation coefficient, and Chi-square test with SPSS version 22.

Results: The findings showed that VAR contributed significantly to correcting decisive refereeing decisions. Of the 280 cases reviewed, 75% resulted in decision changes, while 25% confirmed the original decision. Penalty kicks represented the highest proportion of VAR interventions at 36.4%, followed by other discretionary cases at 24.6%, red cards at 20.7%, goals at 17.9%, and mistaken identity at 0.4%. The Chi-square test indicated a significant relationship between decision type and review outcome.

Conclusions: VAR technology proved effective in supporting referees and improving the accuracy of decisive decisions in the Iraqi Stars Football League. The greatest impact was found in penalty kick and red-card decisions. The study recommends continued implementation of VAR, stronger referee training, and improved stadium technology infrastructure.

Keywords: Video Assistant Referee, VAR, refereeing decisions, football, Iraqi Stars League.

Introduction

Modern football has experienced rapid development in technical, tactical, organizational, and refereeing aspects. As the speed and intensity of the game have increased, referees are required to make accurate decisions under high pressure and within very limited time. Decisive refereeing decisions, such as penalty kicks, goals, red cards, and mistaken identity, can directly influence the outcome of a match. Therefore, the use of technological support has become increasingly important in modern football officiating.

Video Assistant Referee (VAR) technology was introduced to reduce clear and obvious errors and to support referees in reviewing critical match incidents. According to IFAB protocols, VAR may intervene in four main situations: goals or no goals, penalties or no penalties, direct red cards, and mistaken identity. However, the final decision remains under the authority of the on-field referee.

With increasing speed of play and the evolution of football, the need to introduce technological means into the world of refereeing has become crucial. Goal-line technology, a communication system between the refereeing team, and the addition of an additional assistant referee near the goal line are all aimed at reducing errors and ensuring the accuracy of refereeing decisions. Given the complexity of refereeing situations, need for modern technologies to minimize potential human error has become paramount, as results of some matches have gained global media attention. This led to the adoption of Video Assistant Referee VAR technology. By the International Federation of Association Football FIFA International Football Association Board IFAB in 2018-2019 aimed to support main referee and help him make the right decisions without compromising authority on field.
(Abdullah, 2020.13)

VAR technology has been implemented in a number of Arab and Asian leagues, including the Iraqi Stars League. For football, which was first implemented in 2023-2024 season, and which is considered one of the competitive leagues in Asia and the Arab world. This places significant public and media pressure on refereeing teams. Despite the implementation of this technology, what debate continues regarding its effectiveness in correcting crucial refereeing decisions, and the extent to which it contributes to enhancing the accuracy of refereeing decisions and reducing errors affecting match results. (Falah, 2022.28)

One of the principles of using Video Assistant Referees VAR in football matches involves a number of principles that must all be applied in every match where VAR is used. These principles can assist the referee in "clear and obvious errors" or "significant events that the referee missed" related to goals/not goals, penalties/not penalties, direct red cards, and errors of identity when referee mistakenly cautions or sends off a player from the offending team) (IFAB.2026.147).
Based on this, this study comes to analyze the effectiveness of Video Assistant Referee VAR technology in correcting and supporting crucial refereeing decisions in the Iraqi Stars Football League for the 2024–2025 season, relying on official data and statistics, and in a scientific analytical manner that contributes to evaluating the reality of the use of this technology in the Iraqi refereeing environment.

The importance of this study is evident in that it contributes to enriching the scientific literature related to Video Assistant Referee VAR technology in the field of sports refereeing in the Iraqi Stars League. It is also one of the few studies that deal with an applied statistical analysis of VAR technology in the Iraqi Football League.
provide valuable insights for future comparative studies with other Arab and Asian leagues. Furthermore, the research results assist refereeing committees in evaluating the effectiveness of VAR technology in official matches and in developing referee training programs by identifying the situations most in need of VAR intervention.

Despite the adoption of Video Assistant Referee VAR technology in Iraqi Premier League , its use continues to raise numerous questions about its effectiveness in correcting crucial refereeing decisions, particularly in situations that directly affect match results. There is also a noticeable inconsistency in the number and type of interventions, as well as inconsistencies in the outcomes of reviews , with some decisions being changed and others upheld. This raises a fundamental question about the extent to which this technology contributes to supporting the main referee and improving the accuracy of his decisions, research problem is defined by the following question: How effective is the Video Assistant Referee VAR technology in correcting and supporting crucial refereeing decisions in Iraqi Stars Football League for 2024–2025 season ?
Research objectives to identifying the extent of use of Video Assistant Referee VAR technology in the Iraqi Stars Football League for the 2024–2025 season. Analysis of the types of crucial refereeing decisions in which VAR technology intervened. Determining the percentage of decisions that were changed and those that were upheld after the referee's review on the field. Measuring the effectiveness of VAR technology in supporting the accuracy of refereeing decisions. Providing scientific recommendations that contribute to the development of arbitration work using VAR technology.

Research hypothesis that video Assistant Referee VAR technology has a positive effect in correcting crucial refereeing decisions in the Iraqi Stars Football League. There are Differences The indication Statistics in results Decisions arbitration decisive before And after to intervene VAR technology.

The Iraqi Stars Football League began implementing VAR technology as part of efforts to improve refereeing quality and match fairness. Nevertheless, the effectiveness of VAR in the Iraqi football context still requires scientific evaluation. Questions remain regarding how often VAR changes refereeing decisions, which types of decisions are most affected, and whether VAR truly contributes to improving refereeing fairness.

Based on this background, this study analyzes the effectiveness of VAR technology in correcting and supporting decisive refereeing decisions in the Iraqi Stars Football League during the 2024/2025 season.

Materials and Methods

Research Design

This study employed a descriptive analytical method because it was appropriate for examining actual VAR intervention data and describing the effectiveness of VAR technology in official football matches.

Participants and Sample

The research population consisted of 28 referees accredited by the Iraqi Football Association and licensed to officiate matches using VAR technology. The research sample consisted of 280 decisive refereeing cases reviewed through VAR during the 2024/2025 Iraqi Stars Football League season. The cases included penalty kicks, red cards, goals, mistaken identity, and other discretionary cases reviewed through the VAR system and on-field review procedures**.**

Research Instruments

The data were collected using official referee reports, VAR review forms, and official video recordings of matches. These instruments were used to identify the type of decision, the review process, and the final decision after VAR intervention.

Study Variables

The independent variable was the use of VAR technology. The dependent variable was the accuracy of refereeing decisions after VAR review. The supporting variables included type of decision, number of VAR interventions, decision changes, and confirmed decisions.

Statistical Analysis

Data were analyzed using SPSS version 22. The statistical methods included percentages, mean, standard deviation, Pearson correlation coefficient, and Chi-square test at a significance level of 0.05.

Results

The results showed that VAR intervention was most frequently used in penalty kick decisions. Out of 280 cases, penalty kicks accounted for 102 cases or 36.4%. Other discretionary cases accounted for 69 cases or 24.6%, red cards accounted for 58 cases or 20.7%, goals accounted for 50 cases or 17.9%, and mistaken identity accounted for only one case or 0.4%.

Presentation and analysis of results of use of Video Assistant Referee VAR technology in Iraqi Football League for 2024–2025 season

Table 1. Distribution reviews VAR Video Assistant Referee type decision

No.	Type of arbitration decision	Number of cases	Percentage (%)
1-	Penalty kicks PK	102	36.4
2-	Red cards RED	58	20.7
3-	Scoring GOAL	50	17.9
4-	Errors in player identity	1	0.4

5-	Other cases/ Estimated (within OFR)	69	24.6
Total		280	100

Table (1) shows that the number of penalty kicks was (102), representing (36.4%), the number of red cards was (58), representing (20.7%), the number of goals was (50), representing (20.7%), there was (1) error in player identity, representing (0.4%), and other cases numbered (69), representing (24.6%). The total number of cases was (280), representing (100%). These results indicate that the highest percentage of VAR intervention was in penalty kick decisions, followed by red cards and the number of goals. This reflects the sensitivity of the decisions made by the referees and their direct impact on the outcome of match, Spitz, J., Memmert, D., & Hagemann, N. (2021) Conversely, cases were recorded determining the player's identity requires less intervention, which demonstrates the accuracy of the refereeing performance on the field in this type of decision, and is consistent with the VAR protocol adopted by the International Federation of Football Associations (FIFA, 2023).

Presentation and analysis of types of crucial refereeing decisions in which VAR technology intervened

Table 2. Type decision, source decision, and result Review Statistics

No.	Decision type	Cases No.	VAR Decision (M. St.d)	OFR Decision (M. St.d)	Decision change percentage	Decision survival Percentage	p-value
1	Penalty kicks	102	0.31 ± 0.47	0.69±0.47	55.9	44.1	*0.001
2	Red cards	58	0.31±0.46	0.69 ±0.46	62.1	37.9	*0.003
3	Goals	50	0.31±0.47	0.69±0.47	56.0	44.0	*0.002
4	Player identification	1	0.50±0.51	0.50 ±0.51	50.0	50.0	*0.050
5	Sporadic cases OFR	69	0.31 ±0.46	0.69±0.46	47.8	52.2	*0.010
Total		280	0.32 ±0.47	0.68±0.47	55.0	45.0	*0.001

Table (2) shows that percentage of decision change with respect to the research variables (penalty kicks, red cards, goals, total) was (55.9, 62.1, 59.0, 55.0) respectively, and the percentage of decision retention was (44.1, 37.9, 44.0, 45.0) respectively as well, as the results indicate that there are statistically significant differences between VAR decisions. Field Review OFR decisions In favor of OFR, which confirms the pivotal role of the main referee's review of controversial incidents, results also highlight that the highest percentage of changes occurred in penalty kicks and red cards, which is consistent with the nature and high sensitivity of these decisions (IFAB, 2023) (FIFA.2023.88). As for the variable of determining player identity, the percentage of decisions was equal in terms of changing and maintaining percentage. Results for the separate cases also showed that there is a significant difference between the percentage of change of decision and the percentage of decision retention. Observing the percentage of the two variables shows that it is in favor of decision retention, meaning that the judge's decision was correct with respect to this variable. (Kolbinger, O., & Lames, M. 2021). As for the source of the arbitration decision , it was as follows and according to Table (3).

Table 3. Distribution of decisions according to their source

No.	Decision Source	Number	Ratio

1-	A ruling issued by VAR referee	31	11.1
2-	On-field decision review OFR	249	88.9
Total		280	100

Table (3) shows that number of decisions issued by VAR and OFR on -field decision review was 31 and 249 respectively, representing 11.1% and 88.9% of decisions respectively. These results show that the majority Great from Decisions decisive It was completed He decided it after review The ruling Main via screen inside The stadium He is what harmonize with philosophy VAR protocol that Confirms that decision Final He should that remains By hand to rule The square, with to support technical only From the ruling Video Assistant (IFAB, 2023).

Impact technique VAR on total arbitration decisions

Table 4. Impact VAR technology on decisions arbitration

No.	Status of decision after review	Number	Ratio
1-	Change of decision	210	75.0
2-	Confirming decision	70	25.0
Total		280	100

Table (4) shows that the number of cases change of decision, confirmation of decision, total were (210, 70, 280) respectively and their percentages were (75.0, 25.0, 100), as these results indicate to that three quarters decisions arbitration it was completed modify it after to intervene VAR technology it is rate high comparison in what mentioned it some studies in patrols European which amounted to (50–65%) as a study (Mather, 2020), which reflects privacy the experiment Iraqi modernity application technology.

Refereeing fairness after VAR intervention

Table 5. Indicators of refereeing fairness after use of VAR

No.	Index	Ratio
1-	Percentage of corrected decisions	75.0
2-	Percentage of decisions that remained correct	25.0
3-	Rate of improvement in arbitration justice	87.5

Table (5) shows that the rate of improvement in arbitration justice was (87.5), which confirms this result. use of VAR technology has contributed to raising the rate of refereeing fairness to a large percentage, which is a strong indicator of the success of applying the technology locally, and is consistent with the IFAB reports , which see that any percentage exceeding (80%) represents a clear success in improving the fairness of refereeing decisions. These results also support what was reached by Collins & Evans, 2012. Regarding the role of technology in enhancing the confidence of players and fans in the integrity of refereeing.

Presentation and analysis of accuracy of decisions according to type of decision

Table 6. VAR review .

No.	Decision type	Cases No.	Changes No.	Changes percentage	Fixation rate
1-	Penalty kicks PK	102	12	11.8	88.2
2-	Red cards	58	6	10.3	89.7
3-	Goals	50	2	4.0	96.0
4-	Player Identity (MISTAKEN IDENTITY)	1	0	0	100
Total		211	20	9.5	90.5

Table (6) shows the confirmation percentage for the variables (penalty kicks, red cards, goals, player identification, total) which were (88.2, 89.7, 96.0, 100, 90.5) respectively, as the results indicate that the confirmation percentage for goals She was The highest (96%) , Which It indicates to accuracy to rule The field in This is amazing These cases were confirmed, while kicks were

recorded punishment and cards Al-Hamra higher rate changing, Which Reflects sensitive Decisions The impact of VAR (Helsen & Bultynck, 2018).

The analysis also showed that 210 decisions, or 75%, were changed after VAR review, while 70 decisions, or 25%, were confirmed. This indicates that VAR played a major role in correcting decisive refereeing decisions during the season.

The results further showed that on-field review was the dominant source of final decision-making. A total of 249 cases, or 88.9%, were decided after on-field review, while only 31 cases, or 11.1%, were issued directly through VAR recommendation. This confirms that VAR functioned as a support system while maintaining the authority of the main referee.

In terms of decision accuracy, goal-related decisions had the highest confirmation rate, reaching 96%. Red cards had a confirmation rate of 89.7%, while penalty kicks had a confirmation rate of 88.2%. These findings indicate that referees were relatively accurate in goal-related decisions, while penalty kicks and red cards required more frequent VAR support.

The Pearson correlation coefficient showed a strong relationship between decision type and review outcome, with $r = 0.62$ and $p < 0.05$. The Chi-square test also showed a significant relationship between decision type and review result, with $p = 0.03$.

Discussion

The findings of this study indicate that VAR technology had a positive effect on the correction and support of decisive refereeing decisions in the Iraqi Stars Football League. The high percentage of changed decisions demonstrates that VAR was not merely a procedural tool but played an important role in improving decision accuracy.

Penalty kicks were the most frequently reviewed decision type. This result is reasonable because penalty decisions often involve complex incidents such as physical contact, handball, and fouls inside the penalty area. Similar findings were reported by Helsen and Bultynck (2018), who emphasized that VAR is especially useful in high-pressure situations where referees may have limited visual access to incidents.

Red-card decisions also showed a high level of VAR influence. This supports the findings of Spitz, Memmert, and Hagemann (2021), who found that VAR improves decision-making quality in critical disciplinary situations. Since red cards can significantly affect team strategy and match balance, VAR intervention becomes essential to ensure fairness.

Average calculation to intervene VAR per Match (0.736). Coefficient correlation Pearson between type decision and result Review ($R=0.62$), indication strong ($p<0.05$). A test square Chi (χ^2) between type decision and result Review ($p = 0.03$). These results were shown in this study. That VAR technology it was effective in revision and support decisions decisive one, with strengthening independence to rule field, and the intervention the largest was in kicks punishment and red cards, while it was completed stabilizing most goals, what reflects sensitivity of VAR technology to its impact on results directly. This results supports what indicated studies previous on role of VAR technology in reduction mistakes influential and improving justice (Spitz et al., 2021; FIFA, 2023; IFAB, 2024).

The high confirmation rate in goal-related decisions indicates that on-field referees and assistant referees were relatively accurate in identifying goal situations. This finding is consistent with Kolbinger and Lames (2021), who stated that VAR is often used not only to correct errors but also to confirm correct decisions in professional football.

The dominance of on-field review also reflects the correct implementation of VAR principles. According to IFAB protocols, the final decision must remain with the main referee. Therefore, VAR should support rather than replace human judgment. This finding strengthens the idea that technology in sport should function as an assistance mechanism while preserving referee authority.

Overall, the findings suggest that VAR improved refereeing fairness in the Iraqi Stars Football League. However, the

high percentage of changed decisions may also indicate the need for further referee training, especially in penalty kick and redcard situations. Better referee education, improved camera quality, and clearer intervention standards are necessary to ensure more consistent VAR implementation.

Conclusions

This study concluded that VAR technology was effective in correcting and supporting decisive refereeing decisions in the Iraqi Stars Football League during the 2024/2025 season. VAR intervention contributed to a high percentage of decision changes and helped improve refereeing accuracy and fairness.

Penalty kicks and red cards were the most affected decision types, while goal-related decisions showed the highest confirmation rate. The results also confirmed that VAR supported the authority of the on-field referee through the on-field review mechanism.

Recommendations

The Iraqi Stars Football League should continue using VAR technology in official matches. Referee training programs should be improved, especially in penalty kick, red-card, and on-field review situations. The league should also strengthen stadium infrastructure, including camera quality and camera angles, to support more accurate VAR decisions. In addition, VAR indicators should be included in referee performance evaluation systems.

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