



Psychological cognitive distortion and its relationship to decision-making among referees in the Iraqi Stars League for the 2024-2025 football season

Distorsión cognitiva psicológica y su relación con la toma de decisiones entre los árbitros de la Liga de Estrellas Iraquí para la temporada de fútbol 2024-2025

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Abstract

Objective: The research aims to to develop a cognitive distortion scale for referees in the 2024-2025 Iraqi Stars League and to identify the role of cognitive distortion in decision-making and match control among football referees. The research was limited to referees in the 2024-2025 Iraqi Stars League and was conducted at the headquarters of the Iraqi Football Association.

Research methodology: the researchers used aspects of systematic scientific analysis and interpretation to explain and depict a specific phenomenon or problem. This is achieved by collecting information and data about that problem, classifying it, analyzing it, and carefully studying it. The research community was defined as the referees of the Iraqi Stars League for the 2024-2025 season, totaling (70) referees who participated in the league. The researcher selected a sample of (37) referees, representing (52.86%) of the community, for the application of the two scales and to determine the level of the two scales and the relationship between them. It should be noted that the researchers used the entire community (70) referees participating in the league (100%) in the process of constructing the scales and deriving the scientific basis for the data. (5) referees, representing (7.14%) of the community,

Results: The results indicate that there is a statistically significant difference in both cognitive distortion and decision-making compared to the hypothesized mean. This suggests that cognitive distortions may be clearly prevalent in the sample, while they appear to have acceptable decision-making ability.

Conclusions: Psychological cognitive distortion is a distortion of active thinking. Therefore, we observe that most referees in the Iraqi Stars League for the 2024-2025 season exhibit cognitive distortion.

Keywords

Cognitive distortion; decision-making; referees; football.

Resumen

Objetivo: La investigación busca desarrollar una escala de distorsión cognitiva para los árbitros de la Liga de las Estrellas Iraquí 2024-2025 e identificar el papel de la distorsión cognitiva en la toma de decisiones y el control del partido entre los árbitros de fútbol. La investigación se limitó a los árbitros de la Liga de las Estrellas Iraquí 2024-2025 y se llevó a cabo en la sede de la Asociación Iraquí de Fútbol.

Metodología de la investigación: Los investigadores utilizaron aspectos del análisis e interpretación científica sistemática para explicar y describir un fenómeno o problema específico. Esto se logra mediante la recopilación de información y datos sobre dicho problema, clasificándolo, analizándolo y estudiándolo cuidadosamente. La comunidad de investigación se definió como los árbitros de la Liga de las Estrellas Iraquí para la temporada 2024-2025, con un total de 70 árbitros que participaron en la liga. El investigador seleccionó una muestra de 37 árbitros, que representa el 52,86% de la comunidad, para la aplicación de las dos escalas y para determinar el nivel de ambas y la relación entre ellas. Cabe destacar que los investigadores utilizaron a toda la comunidad (70) árbitros que participan en la liga (100%) en el proceso de construcción de las escalas y derivación de la base científica de los datos. (5) árbitros, que representan el (7,14%) de la comunidad,

Resultados: Los resultados indican que existe una diferencia estadísticamente significativa tanto en la distorsión cognitiva como en la toma de decisiones en comparación con la media hipotética. Esto sugiere que las distorsiones cognitivas podrían ser claramente prevalentes en la muestra, a pesar de que parecen tener una capacidad aceptable para la toma de decisiones.

Conclusiones: La distorsión cognitiva psicológica es una distorsión del pensamiento activo. Por lo tanto, observamos que la mayoría de los árbitros de la Liga de las Estrellas Iraquíes para la temporada 2024-2025 presentan distorsión cognitiva.

Palabras clave

Distorsión cognitiva; toma de decisiones; árbitros; fútbol.

Introduction

Football is one of the most popular sports in the world, and it has a significant impact on fans and players alike. Referees are an essential part of the sport, making crucial decisions that influence the course and outcome of matches. However, at times, the referee may be subject to cognitive distortions that influence their decisions, sparking much controversy among players and fans alike. Cognitive distortions are psychological traits that refer to errors or deviations in the perception or interpretation of information in an inaccurate or distorted manner. These distortions may be the result of psychological, social, or even environmental factors that influence decision-making. Football refereeing is one of the most demanding fields, requiring quick and accurate decision-making under high pressure. Referees must assess complex situations in fractions of a second, making their decisions vulnerable to a range of cognitive factors that can affect the accuracy and objectivity of referees. One of the most prominent of these factors is cognitive distortion, which refers to systematic patterns of deviation from rational thinking, leading to errors in referees and decision-making (Hani et al., 2025; Madloul et al., 2025).

Cognitive distortion affects referees' decisions in several ways. It can lead to unconscious biases that cause the referee to lean toward certain decisions based on contextual or historical factors of the match. Some common forms of cognitive distortion among referees include:

- Confirmation bias: The referee tends to seek information that supports his previous decisions rather than objectively analyzing the situation (Larkin et al. 2018; Rey Gómez et al., 2025; Ahmed et al., 2025).
- Hindsight Bias: The referee's tendency to believe they could have predicted the outcome of a decision after it has occurred, which may influence their future decisions (Furley & Memmert 2016; Schena & Mendes Capraro, 2025).
- Social Pressure Bias: Referees tend to make decisions that favor the home team due to the psychological influence of fans, as demonstrated by numerous studies on referee bias in home matches (Nevill et al., 2002; Zambrano Noboa et al., 2025).
- Consistency Bias: Referees tend to make decisions consistent with their previous decisions, even if they are incorrect, for fear of losing credibility (Mascarenhas et al., 2005; Aceña Rodríguez et al., 2025; Villaseca-Vicuña et al., 2025)

The interest in football referees stems from their fundamental importance in the game and the extent of their contribution to its enjoyment, the safety of players, and the achievement of justice. Those interested and concerned with football have undertaken the process of monitoring, analyzing, and studying the behavior of referees in order to qualify them according to precise and comprehensive scientific methods and prepare them properly, appropriate for their role in controlling and overcoming pressures, guiding the game and bringing it to safety with the fewest number of mistakes, managing the psychological reactions that influence their choices, and having fast mental and physical reactions (Mohammed et al., 2019; Yunus & Aditya, 2024; Burgos Angulo et al., 2025). Research has shown that these distortions lead to refereeing errors that affect match outcomes, potentially leading to a loss of sporting fairness and increased debate about referee integrity. A study by (Nevill et al., 2002) found that referees in matches with high attendance were more likely to make decisions in favor of the home team compared to matches played in stadiums with low attendance. This study derives its importance from the pivotal role played by Iraqi Premier League referees for the 2024-2025 season in ensuring the integrity and fairness of matches. Referees' decisions directly impact match outcomes, making studying the factors influencing the accuracy of these decisions essential for understanding and improving refereeing performance. This study contributes to enriching the scientific literature on the topic of cognitive distortion in sports, particularly in the context of football refereeing. It highlights the various types of cognitive distortions that may influence referees' decisions, helping to develop new cognitive models for understanding decision-making and match control in sporting settings. It also opens the door for future research into how psychological and cognitive factors influence referee performance in various sports, not just football.

Research problem

The research problem is crystallized in the significant challenges facing Iraqi Premier League referees for the 2024-2025 season due to the fast-paced nature of the game and the intense pressure they face during matches. This makes their decisions vulnerable to cognitive distortions. These distortions manifest in various forms, such as confirmation bias, crowd pressure, and hindsight bias, which can lead to inaccurate or inconsistent decisions (Hani, 2021). Despite technological advancements, such as the use of video assistant referee (VAR) technology, refereeing errors persist, indicating that cognitive factors play a major role in referee decisions. Therefore, the study's problem is to understand the extent to which cognitive distortions affect decision-making and match control among football referees, identify the most prominent types of cognitive biases that affect the accuracy of their decisions, and explore methods that can be used to reduce these distortions and improve referee performance. From the above, the research problem arises in the following question: What is the extent to which cognitive distortions affect decision-making and match control among football referees?

Research objective

The research aims to build a cognitive distortion scale for the referees of the Iraqi Premier League 2024-2025, and to identify the role of cognitive distortion in decision-making and match control among football referees.

Research fields

- Human field: referees of the Iraqi Premier League for the 2024-2025 season.
- Time field: 2024-2025 season.
- Spatial field: headquarters of the Iraqi Football Association.

Method

Research Methodology

To achieve the research objectives, Descriptive research is one of the methods that the researchers used. aspects of systematic scientific analysis and interpretation to explain and depict a specific phenomenon or problem. This is achieved by collecting information and data about that problem, classifying it, analyzing it, and carefully studying it.

Community and sample research

The research community was defined as the referees of the Iraqi Stars League for the 2024-2025 season, totaling (70) referees who participated in the league. The researcher selected a sample of (37) referees, representing (52.86%) of the community, for the application of the two scales and to determine the level of the two scales and the relationship between them. It should be noted that the researchers used the entire community (70) referees participating in the league (100%) in the process of constructing the scales and deriving the scientific basis for the data. (5) referees, representing (7.14%) of the community, were selected for a exploratory study as shows in the table (1).

Table 1 shows the details of the research sample and the percentages within the research sample.

No.	Sample type	Number	Percentage of the community	Total number
1	Survey sample	5	% 7,14	
2	Application sample	23	%52.86	70
5	Construction sample	70	%100	

Research Tools

Cognitive Distortion Scale

The researcher constructed a cognitive distortion scale for referees in the Iraqi Premier League for the 2024-2025 season, consisting of (30) items. The scale's items were answered on a five-point scale



(always applies to me, sometimes applies to me, never applies to me). Items (1, 2, 3) were corrected. After defining the concept of the scale, formulating its items, and making some adjustments by experts to make it suitable for the research sample, it was presented in its initial form to a group of arbitrators and specialists in sports psychology, measurement, and evaluation. The researchers relied on an agreement rate of (80%) or greater to accept the item, and all items achieved an agreement rate of greater than (80%). According to the arbitrators' opinions and observations, all arbitrators approved the scale, consisting of (30) items, as a validated tool in this research, as shown in Table (2).

Table 2. Shows the percentage of experts' agreement on the cognitive distortion scale.

Paragraph number	Agreement	Disagree	Agreement rate	Paragraph number	Agreement	Disagree	Agreement rate
1	15	0	%100.0	16	14	1	%93.3
2	12	3	%80.0	17	12	3	%80.0
3	12	3	%80.0	18	12	3	%80.0
4	15	0	%100.0	19	12	3	%80.0
5	15	0	%100.0	20	13	2	%86.7
6	13	2	%86.7	21	15	0	%100.0
7	13	2	%86.7	22	15	0	%100.0
8	14	1	%93.3	23	15	0	%100.0
9	12	3	%80.0	24	15	0	%100.0
10	12	3	%80.0	25	13	2	%86.7
11	12	3	%80.0	26	9	6	%60.0
12	14	1	%93.3	27	12	3	%80.0
13	13	2	%86.7	28	13	2	%86.7
14	13	2	%86.7	29	13	2	%86.7
15	13	2	%86.7	30	14	1	%93.3

Decision-making and Match Control Questionnaire

To measure decision-making and match control among Iraqi Premier League referees for the 2024-2025 season, a tool was required to measure this variable. The researchers constructed a questionnaire consisting of (12) paragraphs. The questionnaire's paragraphs were answered on a three-point scale (yes, no, sometimes). Paragraphs (1, 2, 3) were corrected. After defining the questionnaire's concept and formulating its paragraphs, it was presented in its initial form (appendix) to a group of arbitrators and experts in the field of sports psychology, measurement and evaluation, and referees of the 2024-2025 season of the Iraqi Premier League (appendix). The researchers relied on an agreement rate of (80%) or greater to accept or reject the paragraph. All paragraphs achieved an agreement rate of greater than (80%) except paragraph (26), which was therefore deleted, leaving the scale consisting of (29) paragraphs. According to the the arbitrators' opinions and observations, all arbitrators approved the questionnaire consisting of (12) paragraphs as a validated tool in this research, according to Table (3).

Table 3. Shows the experts' agreement rate on the decision-making and match control questionnaire.

Paragraph number	Agreement	Disagree	Agreement rate	Paragraph number	Agreement	Disagree	Agreement rate
1	14	1	%93.3	7	15	4	%100.0
2	12	3	%80.0	8	14	3	%93.3
3	15	3	%100.0	9	12	3	%80.0
4	15	0	%100.0	10	15	3	%100.0
5	13	0	%86.7	11	13	2	%86.7
6	13	2	%86.7	12	14	0	%93.3

Investigative Test

The exploratory experiment was carried out by the researchers on January 3, 2025, which included how to apply the research tools to (5) judges with the assistance of the work team. This experiment aimed to achieve several objectives, including:

1. Identifying the extent of the difficulties facing the researchers.
2. Identifying the adequacy of the support team.
3. Identifying the time required for each tool.



4. Determining the scientific basis for the tests.
5. Assessing how prepared the research sample is to respond to the questionnaire and scale.

Scientific basis for the research tools

A: Discriminatory ability of the items:

The researchers extracted the scale's items' capacity for discrimination and questionnaire using the two extreme group's method. The researchers applied the scale and questionnaire to a statistical analysis sample of (70) judges. After correcting the responses, the researchers extracted the scale's and questionnaire's items' capacity for discrimination. From highest to lowest, the scores were sorted in descending order. It was determined that the two extreme groups accounted for 30% of the questionnaires. There were forty-two referees in all, twenty-one from the top group and twenty-one from the lowest. The significance of the difference between the average scores of the highest and lowest groups was examined for each paragraph of the scale using the t-test for two independent samples (Test to Independent Samples). A comparison was also made between the significance value (sig) and the significance level. It was found that all the paragraphs were distinct for both questionnaires at a significance level of (0.05), as shown in Tables (4) and (5).

Table 4. Shows the discriminatory ability of the cognitive distortion scale.

Sequence of Paragraphs	Upper group		Lower group		T value calculated	Level Sig	Type Sig
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
1	3.0000	0.00000	1.6000	0.49827	15.389	0.000	Sig
2	3.0000	0.00000	1.6667	0.47946	15.232	0.000	Sig
3	3.0000	0.00000	1.3333	0.47946	19.039	0.000	Sig
4	3.0000	0.00000	1.7000	0.46609	15.277	0.000	Sig
5	3.0000	0.00000	1.2667	0.44978	21.108	0.000	Sig
6	3.0000	0.00000	1.1000	0.30513	34.106	0.000	Sig
7	3.0000	0.00000	1.2667	0.44978	21.108	0.000	Sig
8	3.0000	0.00000	1.5667	0.50401	15.577	0.000	Sig
9	3.0000	0.00000	1.5667	0.50401	15.577	0.000	Sig
10	3.0000	0.00000	1.3333	0.47946	19.039	0.000	Sig
11	3.0000	0.00000	2.2000	0.40684	24.233	0.000	Sig
12	3.0000	0.00000	1.6667	0.47946	15.232	0.000	Sig
13	3.0000	0.00000	1.4333	0.50401	17.026	0.000	Sig
14	3.0000	0.00000	1.4000	0.49827	17.588	0.000	Sig
15	3.0000	0.00000	2.2333	0.43018	22.494	0.000	Sig
16	3.0000	0.00000	1.5333	0.50742	15.832	0.000	Sig
17	3.0000	0.00000	1.6000	0.49827	15.389	0.000	Sig
18	3.0000	0.00000	2.3667	0.49013	18.252	0.000	Sig
19	3.0000	0.00000	2.4000	0.49827	17.588	0.000	Sig
20	3.0000	0.00000	2.2333	0.43018	22.494	0.000	Sig
21	3.0000	0.00000	1.4667	0.50742	16.551	0.000	Sig
22	3.0000	0.00000	1.3667	0.49013	18.252	0.000	Sig
23	3.0000	0.00000	1.4000	0.49827	17.588	0.000	Sig
24	3.0000	0.00000	1.3333	0.47946	19.039	0.000	Sig
25	3.0000	0.00000	1.4667	0.50742	16.551	0.000	Sig
26	3.0000	0.00000	2.5333	0.50742	15.832	0.000	Sig
27	3.0000	0.00000	2.5333	0.50742	15.832	0.000	Sig
28	3.0000	0.00000	1.4333	0.50401	17.026	0.000	Sig
29	3.0000	0.00000	1.2667	0.44978	21.108	0.000	Sig

Significant when the significance value ≤ 0.05 under degree of freedom of 40

Table 5. Shows the discriminatory ability of the decision-making questionnaire.

Sequence of Paragraphs	Upper group		Lower group		T value calculated	Level Sig	Type Sig
	Arithmetic mean	Standard deviation	Arithmetic mean	Standard deviation			
1	3.0000	0.00000	1.5385	.50839	-14.659	0.000	Sig
2	3.0000	0.00000	1.8077	.40192	-15.126	0.000	Sig
3	3.0000	0.00000	1.6923	.47068	-14.167	0.000	Sig
4	3.0000	0.00000	1.5769	.50383	-14.402	0.000	Sig
5	3.0000	0.00000	1.3846	.49614	-16.602	0.000	Sig
6	3.0000	0.00000	1.6923	.47068	-14.167	0.000	Sig
7	3.0000	0.00000	1.4615	.50839	-15.430	0.000	Sig
8	3.0000	0.00000	1.4231	.50383	-15.959	0.000	Sig
9	3.0000	0.00000	2.3077	.47068	-18.333	0.000	Sig
10	3.0000	0.00000	1.4231	.50383	-15.959	0.000	Sig



11	3.0000	0.00000	1.1538	.36795	-25.584	0.000	Sig
12	3.0000	0.00000	1.6923	.47068	-14.167	0.000	Sig

Significant when the degree of freedom is 40 and the significance value is less than 0.05

B: The connection between the overall score and the item score is:

To ascertain the relationship between each item on the scale and questionnaire and the scale's overall score, the researchers used the Pearson correlation coefficient. Because the significance value (sig) is smaller than the significance level of (0.05), as shown in Tables (6) and (7), it was determined that all elements are significant.

Table 6. Shows the internal consistency coefficient for the cognitive distortion scale.

No.	Correlation coefficient	Level Sig	Type Sig	No.	Correlation coefficient	Level Sig	Type Sig
1	.301**	.002	Sig	16	.329**	.001	Sig
2	.341**	.001	Sig	17	.282**	.006	Sig
3	.208*	.043	Sig	18	.260*	.011	Sig
4	.338**	.001	Sig	19	.452**	.000	Sig
5	.361**	.000	Sig	20	.339**	.000	Sig
6	.341**	.001	Sig	21	.263*	.010	Sig
7	.397**	.000	Sig	22	.282**	.006	Sig
8	.235*	.022	Sig	23	.254*	.013	Sig
9	.263*	.010	Sig	24	.318**	.002	Sig
10	.268**	.009	Sig	25	.286**	.005	Sig
11	.348**	.000	Sig	26	.369**	.000	Sig
12	.238*	.020	Sig	27	.250*	.015	Sig
13	.428**	.000	Sig	28	.365**	.000	Sig
14	.405**	.000	Sig	29	.391**	.000	Sig
15	.343**	.001	Sig				

A significance value of less than 0.05 is considered significant.

Table 7. Shows the internal consistency coefficient of the decision-making questionnaire.

No.	Correlation coefficient	Level Sig	Type Sig	No.	Correlation coefficient	Level Sig	Type Sig
1	.304*	.002	Sig	7	.330**	.001	Sig
2	.375**	.000	Sig	8	.339**	.001	Sig
3	.204*	.047	Sig	9	.258*	.011	Sig
4	.325**	.001	Sig	10	.353**	.000	Sig
5	.258*	.011	Sig	11	.208*	.043	Sig
6	.353**	.000	Sig	12	.308*	.000	Sig

Significant when the degree of freedom is 20 and the significance value is less than 0.05

C: Reliability

Reliability coefficients for the two questionnaire scales under study were determined using the Cronbach's alpha method and the split-half method, as shown in Table (8).

Table 8. Shows the reliability coefficient for the cognitive distortionscale and the decision-making questionnaire

Tool Name	half-split		Cronbach's alpha
	Before correction (Pearson)	After correction (Spearman)	
Cognitive Distortion	0.776	0.780	0.790
Decision Making	0.880	0.885	0.895

To use the cognitive distortion scale and the decision-making questionnaire under study, the research tools in this form represent the final images prepared for the application process on the primary research sample. The cognitive distortion scale for football referees will be in its final form, as shown in Appendix (2), consisting of (29) items and three alternatives. The decision-making and match control scale for football referees will be in its final form, as shown in Appendix (3), consisting of (12) items and three alternatives. Table (9) shows the answer keys for the cognitive distortion scale and the decision-making questionnaire.

Table 9. Shows the answer keys for the cognitive distortion scale and the decision-making questionnaire.

No.	Key	Condition	degree for the positive paragraph	degree for the positive paragraph
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1	Always applies to me	Applies to you constantly or in most situations	3	1
2	Sometimes applies to me	Applies to you only in some situations	2	2
3	Never applies to me	Does not apply to you at all	1	3

Main Experiment

The researchers applied the research tools to first-class football referees registered with the Iraqi Football Association for the 2024/2025 sports season. The aim was to identify cognitive distortion and its role in decision-making among referees in the Iraqi Premier League for the 2024-2025 football season. The main experiment sample consisted of (37) first-class referees, during the period from February 11, 2025 to March 13, 2025. After completing the application, the researchers corrected the questionnaires, then entered the collected data into the forms prepared for this purpose, in preparation for statistical processing.

Statistical Methods

The researchers used the "SPSS" statistical program to process the data statistically, using the following statistical methods:

- Arithmetic mean.
- Standard deviation.
- Percentage test
- Pearson's simple correlation coefficient
- Cronbach's alpha coefficient
- Hypothetical mean
- Simple linear regression

Findings

Presentation and discussion of results:

Table 10. Shows a description of the values of the arithmetic mean, standard deviation, skewness coefficient, calculated (t) value, and hypothetical mean

Variables	Number Sample	Number of Paragraphs	Mean	Std. Deviations	Skewness	Median	range	Standard error	Lowest degree	Highest degree
Cognitive Distortion	37	29	65.0000	10.34945	.3950	62.0000	29.00	.3880	51.00	80.00
Decision Making		12	28.9730	5.02486	0.127	29.0000	16.00	0.388	20.00	36.00

Significant when the significance value ≤ 0.05 under degree of freedom of (36)

Table 11. Shows the values of the arithmetic mean, standard deviation, calculated (T) value, and hypothetical mean.

Variables	Number Sample	Number of Paragraphs	Mean	Std. Deviations	T value	hypothetical mean	Level Sig	Type Sig
Cognitive Distortion	37	29	65.0000	10.34945	4.114	58	0.000	Sig
Decision Making		12	28.9730	5.02486	6.020	24	0.000	Sig

These results indicate that referees in the 2024-2025 Stars League season suffer from a high degree of cognitive distortion, which negatively affects their performance, while they possess a good level of decision-making ability.

The study results show that first-division referees participating in the Iraqi Stars League suffer from high levels of cognitive distortion, with a pre-test mean of 65.00, which is higher than the hypothetical mean of 58. The significance value was less than 0.05, meaning the differences were statistically significant in favor of the hypothetical mean. The study also found that first-division referees participating in the Iraqi Stars League suffer from high levels of decision-making ability, with a pre-test mean of 28.9730, which is higher than the hypothetical mean of 24. The significance value was less than 0.05, meaning the differences were statistically significant in favor of the hypothetical mean.

Significant when the significance value ≤ 0.05 under degree of freedom of (36).

Presentation of the results of cognitive distortion and its role in decision-making:

Table 12. Shows the correlation coefficient, correlation square, contribution ratio, and estimation error.

Model	Correlation coefficient	Coefficient of determination R ²	Contribution ratio	Estimation error
1	-0.501	0.251	0.230	6.58323

a. Predictors: (Constant), Decision making

From the tables above, we can see that the correlation coefficient reached (-0.501) and the coefficient of determination reached (0.251). The coefficient of determination (R^2) explains the percentage change in the dependent variable that is due to the change in the independent variable. The standard error of estimation reached (6.58323), which means that the magnitude of the estimation errors was small. The calculated F-value reached (11.723) with a significance level of (0.002), which is less than (0.05). This clearly indicates that there is a highly significant effect of perceptual distortion on decision-making. This leads us to conclude that the higher the level of perceptual distortion among the referees of the Iraqi Stars League for the 2024-2025 season, the greater the errors in decision-making, as shown by the regression coefficient (0.920). Therefore, the lower the level of perceptual distortion, the greater its contribution to better decision-making, since better decision-making represents the best performance for referees, and thus the rate of decision execution increases. This inverse significant increase is evident from the value (T) which amounted to (5.013) and with a significance level of (0.000), which means that, there is a statistically significant negative correlation between the two variables.

Table 13. Shows the analysis of variance for the study variables.

Model		Sum of squares	Degrees of freedom	Mean squares	F	Sig.
1	Regression	508.059	1	508.059	11.723	0.002b
	Residual	1516.860	35	43.339		
	Total	2024.919	36			

a. Dependent Variable: Cognitive Distortion

b. Predictors: (Constant), Decision making

Table 14. Shows the linear regression

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	parameter value	Standard error	Beta		
1	Fixed	34.396	6.861	5.013	0.000
	Decision making	0.920	0.269	-0.501	3.424

a. Dependent Variable Cognitive Distortion

Perceptual distortion is a negative psychological trait that can adversely affect the performance of football referees. It manifests as an inaccurate or biased interpretation of refereeing situations due to the influence of internal or external factors, such as psychological pressure, emotions, preconceived notions, or experiences. This distortion leads to a disruption in the referee's perception of visual and temporal stimuli on the field, which affects the objectivity and accuracy of the refereeing decision. It can also cause errors of judgment that affect the course of the match and the fairness of the competition.

Therefore, a high level of perceptual distortion in a referee is a negative indicator of weak cognitive and analytical competence and is considered an impediment to sound refereeing performance.

Conversely, decision-making is a key positive indicator in evaluating refereeing performance. A high decision-making score reflects the referee's competence in analyzing complex situations, their speed of response, and their accuracy in applying the laws without hesitation or haste. It can be defined as the mental ability to choose the most appropriate refereeing alternative at the right time, based on a precise understanding of the situation, legal knowledge, and refereeing experience, while maintaining objectivity and emotional stability. The greater a referee's ability to make correct and quick decisions, the more it reflects their maturity, professional strength, and effectiveness in managing the match, thus contributing to fairness and discipline on the field.

Indeed, a low level of cognitive distortion and a high level of decision-making are both positive indicators of a football referee's psychological and refereeing competence, and the opposite is also true.

Discussion

These results indicate that the referees in the Stars League for the 2024-2025 season suffer from a high degree of cognitive distortions, which negatively affects their performance, while they enjoy good levels of decision-making.

The results indicate a statistically significant difference in both cognitive distortions and decision-making compared to the hypothetical mean. This means that cognitive distortions may be clearly widespread in the sample, while they appear to have acceptable decision-making ability. This can be explained by cognitive theory, which asserts that cognitive distortions affect thought processes and decision-making. Many acquired negative behaviors are the result of the rapid developments the world is witnessing, the effects of which are reflected in all areas of human development. They are also affected by negative behaviors and phenomena surrounding them, including the trait of psychological hesitation, which has become almost universal. This is a very serious psychological phenomenon and is considered one of the psychological problems that hinder athletic excellence (Khudhair et al., 2022; Sentie et al., 2025; Irianto et al., 2025; Kadhim Hadi & Ali Sami, 2025). This result indicates that the referees of the Iraqi Premier League for the 2024-2025 season have cognitive distortion, as this result explains that cognitive distortion is an abnormal condition that indicates a defect in the individual's personality. This is consistent with Eureka's point of view that cognitive distortion is a distortion in active thinking that may sometimes affect even educated individuals. Most of the symptoms of cognitive distortion are present, such as (speculation, exaggeration, the tendency of individuals to compare themselves with others, the use of emotion in judging others, negative evaluation of situations in most cases, reducing the importance of the events they go through, excluding the mind in (the decision-making process). Therefore, we note that most of the referees of the Iraqi Premier League for the 2024-2025 season have cognitive distortions, and this result is consistent with a group of previous studies (Dhahi et al., 2022).

From Tables (11, 12) it is clear to us that the correlation coefficient reached (0.501a) and the coefficient of determination reached (0.251) as the coefficient of determination (R^2) explains the percentage of change in the dependent variable that is due to the change in the independent variable, and the standard error of the estimate reached (6.58323) which means that the size of the estimated errors was small, while the calculated F value reached (11.723) with a significance level of (0.002) which is smaller than (0.05) and this is a clear indication that there is a high moral impact of cognitive distortion on decision-making and this leads us to the fact that the higher the level of cognitive distortion among the referees of the Iraqi Premier League for the 2024-2025 season, the more errors there are in decision-making, as the regression coefficient (0.920) shows. Therefore, the greater the cognitive distortion, the greater its contribution to decision-making and thus the percentage of its implementation increases. This moral increase is clear through the value (T) which reached (5.013) at a significance level of (0.000), this means that there is a statistically significant correlation between the two variables.

Here, the researchers believe that the decision-making process for Iraqi Premier League referees for the 2024-2025 season is not an easy one. The referee's decision is immediate and irreversible, as he or she makes it in a split second amidst overwhelming environmental factors. Therefore, the referee's

capabilities and experience play an important role in overcoming these circumstances, enabling him or her to make decisions with complete impartiality, free from any form of bias.

To address this problem, the researchers propose several strategies, including:

- Use of Video Assistant Referee (VAR) technology: This technology allows referees to review the footage more objectively, reducing the impact of momentary pressures (Fernández Guerrero et al., 2025).
- Cognitive training for referees: This aims to improve referees' ability to recognize and better manage unconscious biases (Bendo & Adili, 2025; Oudah Zamil & Thare Hani, 2025).
- Collective evaluation of decisions: This reduces the influence of individual biases and enhances decision accuracy by consulting more than one referee in difficult situations (Recio Moreno et al., 2021).
- Reducing crowd influence: This can be achieved by providing an acoustically isolated environment for assistant referees or by sensitizing referees to the effects of crowd pressure on their decisions (Almeida et al., 2025; Waheeb Yaseen et al., 2025).

Conclusions

- Cognitive distortion is a distortion of active thinking. Therefore, we note that most of the referees in the Iraqi Premier League for the 2024-2025 season exhibit cognitive distortions.
- There is a close link between cognitive distortions (such as bias, emotional thinking, and rash referees) and poor decision-making among referees, especially in situations requiring high speed and impartiality.
- Pressure from the crowd, the importance of the match, or the sensitivity of decisions increase the likelihood of cognitive distortions, negatively affecting impartiality and accuracy.
- Referees who do not receive adequate training in mental skills such as perception, attention, and emotional control are more susceptible to cognitive distortions.
- Referee decisions are affected by cognitive distortions, decreasing their credibility with players and fans, negatively affecting the course of the match.

Recommendations

- Sports federations should integrate training in areas such as emotional control, critical thinking, and self-awareness into referee training courses.
- Video review and psychometric analysis can be used to assess the extent to which decisions are influenced by subjective cognitive factors.
- Providing sports psychologists to accompany referees helps relieve stress and clear the mind, thus reducing cognitive distortions.
- Educating referees about the types of cognitive distortions and how to recognize and address them is an important preventative factor for improving refereeing quality.
- Simulating realistic refereeing situations and assessing referee reactions helps identify and correct cognitive weaknesses.
- Encouraging future studies to understand the relationship between psychological aspects and refereeing, which will contribute to the development of more scientific standards for referee qualification.

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Appendix

Appendix 1. Names of the experts (psychology, tests and measurements, and Iraqi Premier League referees for the 2024-2025 season)

No.	Name	Specialty	Affiliations
1	Dr. Maher Abdul-Ilah	Psychology / Volleyball	Physical Education and Sports Science
2	Dr. Wassan Jassim	Psychology / Volleyball	Physical Education and Sports Science
3	Dr. Muhannad Taleb Al-Abed	Sports Psychology	Physical Education and Sports Science
4	Dr. Fouad Mutab	Handball Tests	Physical Education and Sports Science
5	Dr. Ban Adnan	Psychology / Volleyball	Physical Education and Sports Science
6	Dr. Ali Subhi	Volleyball Tests	Physical Education and Sports Science
7	Dr. Abbas Ali Adhab	Volleyball Psychology	Physical Education and Sports Science
8	Dr. Khalil Sattar	Volleyball Tests	Physical Education and Sports Science
9	Dr. Laith Farhan	Football	Physical Education and Sports Science
10	Dr. Thaer Daoud	Volleyball tests	Physical Education and Sports Science
11	Dr. Fares Sami	Football tests	Physical Education and Sports Science
12	Louay Subhi	Referee Evaluator	Former referee in the Iraqi Federation
13	Salam Juma	Referee Evaluator	Former referee in the Iraqi Federation
14	Sabah Aboud	Referee Evaluator	Former referee in the Iraqi Federation
15	Khalil Yousef	Referee Evaluator	Former referee in the Iraqi Federation

Appendix 2. The Cognitive Distortion Scale in its final form

No.	Paragraphs	Always applies to me	Sometimes applies to me	Never applies to me
1	I feel I need the support of my teammates to make my decisions on the field.			
2	I hesitate to make decisions for fear of the reaction of the players or the crowd.			
3	I believe my decisions may be wrong even before they are implemented.			
4	I avoid making crucial decisions during critical moments of the match.			
5	I feel extremely anxious when I am the main referee or first assistant referee.			
6	I frequently review my decisions after the match.			
7	I need confirmation from the assistant referees before making my final decisions.			
8	I doubt the accuracy of my decisions during intense matches.			
9	I fear making a refereeing error that could affect the outcome of the match.			
10	I find it difficult to make quick decisions in emergency situations.			
11	My concentration is distracted when there is pressure from the crowd.			
12	I am overly concerned with pleasing the players, which weakens my decisiveness.			
13	I postpone making a decision until I am completely certain of the correctness of my position.			
14	I change my position when I notice objections from both teams.			
15	I hesitate to use cards even though the situation calls for it.			
16	I feel guilty when I award a penalty kick or send off a player. I think other referees are more accurate and confident in their decisions than I am.			
17	It's difficult for me to make decisions that the public doesn't like.			
18	I avoid appearing in matches with large crowds or decisive matches.			
19	I don't have the self-confidence when I'm in a decision-making position on the field.			
20	I feel I need the support of my teammates to make my decisions on the field.			
21	I fear that my refereeing mistakes will affect my professional reputation.			
22	I am influenced by the comments of players or coaches during the match.			
23	I feel confused when I am being monitored by the referees.			
24	I am often hesitant to use VAR (if it is available).			
25	I prefer to be a fourth or second assistant referee to reduce the responsibility of making decisions.			
26	I compare myself to other referees and feel inferior to them.			
27	My reflection on my past mistakes influences my current decisions.			
28	I avoid officiating important matches for fear of making mistakes.			
29	I focus more on avoiding mistakes than on managing the game with confidence.			

Appendix 3. Final version of the Decision-Making and Match Control Questionnaire

No.	Paragraphs	Always applies to me	Sometimes applies to me	Never applies to me
1	I struggle to maintain focus throughout the match and make the right decisions at the right time.			
2	I manage to minimize refereeing errors even in tense and stressful situations on the pitch.			
3	I struggle to make accurate decisions when full stoppage time is considered.			
4	I ensure I control the flow of the match by accurately imposing penalties on the coaching staff when they commit violations.			



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- 5 I rely on my teammates to call fouls near them without directly consulting them
or prior agreement.
- 6 My refereeing decisions are influenced by the physical or health status of
players injured during the match.
- 7 I am not influenced by the recommendations of the assistant referees when
making critical decisions, even if they rely on VAR technology.
- 8 I sometimes hesitate to stop play when there is an injury for fear of losing
control of the game.
- 9 I experience psychological pressure when my decisions differ from those of the
on-field referee or the video assistant referee (VAR).
- 10 I pay particular attention to the use of VAR when making decisions regarding
fouls inside the penalty area.
- 11 I focus on fouls inside the penalty area and give them special priority due to
their direct impact on the outcome of the match.
- 12 I have difficulty accurately assessing fouls inside the penalty area despite the
presence of VAR technology.
-