ORIGINAL

Examining self-efficacy levels of football referees

Authors' Contribution:
A Study Design
B Data Collection
C Statistical Analysis
D Data Interpretation
E Manuscript Preparation
F Literature Search
G Funds Collection

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abstract

Background:	This study examined football referees' self-efficacy according to various variables.
Material and methods:	The sample included 278 football referees (Mean$_{age}$=26.00 ± 5.72 years) from different classes in the Ankara province. Participants, selected by convenience sampling, completed the Referee Self-Efficacy Scale (REFS). After testing the main assumptions of parametric tests, t-tests and one-way analysis of variance (ANOVA) were used for data analysis.
Results:	The t-tests revealed no significant difference in gender and education. As for the ANOVA results, there were significant differences in REFS dimensions "physical competency," "game knowledge," and "decision-making" in age; "game knowledge" and "decision-making" in income; and "physical competency" and "decision-making" in the refereeing level.
Conclusions:	Self-efficacy levels of football referees vary according to refereeing categories, income levels, and age.
Key words:	football, referees, self-efficacy.

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INTRODUCTION

Football is a leisure activity that supports an entertaining, dynamic, purposeful, and active lifestyle [1]. With 4% of the world population showing active interest in it, football is one of today's most popular sports [2–5]. The high popularity of this sport also affects its referees.

Referees and their assistants are responsible for ensuring that the competitive efforts of players conform to the rules of the game and that the results are fairly received [6,7]. Even in a universal sport like football, the referee's duty is to maintain fairness and enhance integrity before and after the game [8, 9]. Preserving integrity and ensuring justice during and after games is extremely challenging for referees. They have a tough job during the game because of multiple aspects that should be considered, the need for quick and complex decision-making, the implications of their actions, the number of people involved in the match, and often the violent nature of spectators at sporting events. They perform numerous tasks, including evaluating players' actions during the match, making quick decisions, managing the match, paying attention to multiple aspects of the game, maintaining order, and resolving disputes [10, 11]. All these factors not only make referees' job complex but also increase the scope for mistakes. Referees are often criticized for their decisions because of possible mistakes and subjectivity in assessing actions [10, 12]. Mistakes made while officiating can cause a loss of confidence, high anxiety, and increased stress levels in referees [10, 13–15].

Self-efficacy is a psychological mechanism that reduces performance-related stress and anxiety levels. Self-efficacy refers to an individual's belief that they can successfully execute necessary behaviors that can produce the desired outcomes in a certain domain and that they can carry out different levels of performance successfully [16, 17]. Referee's self-efficacy is defined as the degree to which referees believe that they have the capacity to perform successfully in matches they officiate [17].

This study is based on Bandura's theory of self-efficacy [16], and it examines the self-efficacy levels of football referees. Therefore, it is aimed to examine the self-efficacy of football referees according to various variables.

MATERIAL AND METHOD

RESEARCH MODEL

This study used a relational survey model, which is a quantitative research method that reveals the current condition of the research subject [18].

PARTICIPANTS

The study sample consisted of 278 football referees from the Ankara province in four categories – candidate, city, class, and top-class referees – during the 2020–2021 season.

DATA COLLECTION TOOLS

The data collection tool used in this study had two sections. The first section included personal information of the participants. The second section included the Referee Self-Efficacy Scale (REFS), which was developed by Myers et al. [19] and adapted into Turkish by Karaçam and Pulur [20]. The items per dimension of the scale are as follows: physical competency, five; pressure, three; decision-making, three; communication, four; and game knowledge, three. The REFS is rated on a five-point Likert scale (from Strongly Disagree = 1 to Strongly Agree = 5).

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DATA ANALYSIS

Skewness and kurtosis values were analyzed first to test the normality of distribution. T-tests and one-way analysis of variance (ANOVA) were conducted to determine the difference between variables. The internal consistency coefficient Cronbach's alpha was calculated to assess the reliability of the data. The internal consistency coefficient was .89 for the overall REFS and 0.84 for physical competency, .74 for pressure, .80 for decision-making, .92 for communication, and .83 for game knowledge.

RESEARCH QUESTIONS

1. Is there a difference between the opinions of football referees regarding their self-efficacy levels according to their age?
2. Is there a difference between the opinions of football referees regarding their self-efficacy levels according to their gender?
3. Is there a difference between the opinions of football referees regarding their self-efficacy levels according to their education level?
4. Is there a difference between the opinions of football referees on self-efficacy levels according to the income level?
5. Is there a difference between the opinions of football referees on self-efficacy levels according to their refereeing level?

RESULTS

The personal information of study participants is provided in Table 1. Of the total sample, 37% of the participants were aged 18–23 years, 37.8% 24–29 years, 19.1% 30–35 years, 4.1% 36–41 years, and 1.4% ≥42 years. Of the participants, 88.8% were male and 11.2% were female. Regarding educational levels, 83.8% and 16.2% of the participants were university and high school graduates, respectively. The data on income show that 40.3% of the sample had an income level of ≤407 $. Among the referee categories, class referees accounted for 42.8% of the referees.

Table 1. Personal information of the study participants

Participants' characteristics		f	%
Age	18–23	105	37.8
	24–29	105	37.8
	30–35	53	19.1
	36–41	11	4.0
	≥42	4	1.4
	Total	278	100
Gender	Female	31	11.2
	Male	247	88.8
	Total	278	100
Education	High school graduate	45	16.2
	University graduate	233	83.8
	Total	278	100
Income level	≤407 $	112	40.3
	408–432 $	30	10.8
	433–576 $	35	12.6
	577–721 $	21	7.6
	≥722 $	80	28.8
	Total	278	100

Participants' characteristics		f	%
	Candidate referee	55	19.8
	City referee	92	33.1
Refereeing level	Class referee	119	42.8
	Top-class referee	12	4.3
	Total	278	100

The independent t-test analysis revealed no statistically significant gender difference in football referees' mean scores on the physical competency (t = −1.40; p > 0.05), game knowledge (t = −1.21; p > 0.05),decision-making (t = −.886; p > 0.05), pressure (t = −1.62; p > 0.05), and communication (t = −.289; p > 0.05) dimensions of the RFES (Table 2).

Table 2. Results of the t-test analysis for gender

Dimensions	Gender	n	X̄	Sd.	Df	t	p*
Physical competency	Female	31	4.39	.66		−1.40	.162
	Male	247	4.53	.50			
Game knowledge	Female	31	4.61	.50		−1.21	.225
	Male	247	4.70	.39			
Decision-making	Female	31	4.61	.45	276	−.886	.376
	Male	247	4.69	.46			
Pressure	Female	31	4.54	.74		−1.62	.106
	Male	247	4.73	.58			
Communication	Female	31	4.71	.54		−.289	.772
	Male	247	4.74	.40			

The independent t-test analysis revealed no statistically significant educational difference in football referees' mean scores on the physical competency (t = −1.2; p > 0.05), game knowledge (t = −.684; p > 0.05), decision-making (t = −.1.07; p > 0.05), pressure (t = −1.83; p > 0.05), and communication (t = −.787; p > 0.05) dimensions of the RFES (Table 3).

Table 3. Results of the t-test analysis for education

Dimensions	Gender	n	X̄	Sd.	Df	t	p*
Physical competency	High school	45	4.42	.51		−1.22	.203
	University	233	4.53	.52			
Game knowledge	High school	45	4.65	.42		−.684	.495
	University	233	4.70	.41			
Decision-making	High school	45	4.61	.53	276	−1.07	.286
	University	233	4.69	.44			
Pressure	High school	45	4.56	.94		−1.83	.067
	University	233	4.74	.51			
Communication	High school	45	4.78	.38		.787	.432
	University	233	4.72	.42			

The results of ANOVA for age groups are presented in Table 4. A significant difference was found in the physical competency [F (4, 273) = 4.48, p < .05] and game knowledge [F (4, 273) = 4.00, p < .05] dimensions of the RFES. Tukey's honestly significant difference (HSD) multiple comparison test was performed to identify the groups that significantly differed from each other.

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A significant age difference was found in mean scores on physical competency and game knowledge between the 30–35, 18–23, and 24–29 years age groups. The participants in the 30–35 years age group had higher scores than those in the other two age groups. As for the decision-making dimension, there was a significant difference between the 18–23 and 30–35 years age groups. The participants in the 30–35 age group had higher scores than those in the 18–23 years age group.

Table 4. Results of the analysis of variance for age groups

Dimensions	Age	n	X̄	F	p*	Sig. Difference
Physical competency	18–23	105	4.43			
	24–29	105	4.45			
	30–35	53	4.76	4.48	.002	(18–23)–(30–35), (24–29)–(30–35)
	36–41	11	4.69			
	≥42	4	4.65			
Game knowledge	18–23	105	4.64			
	24–29	105	4.64			
	30–35	53	4.86	4.00	.004	(18–23)–(30–35), (24–29)–(30–35)
	36–41	11	4.90			
	≥42	4	4.83			
Decision-making	18–23	105	4.58			
	24–29	105	4.66			
	30–35	53	4.86	3.95	.004	(18–23)–(30–35)
	36–41	11	4.84			
	≥42	4	4.75			
Pressure	18–23	105	4.61			
	24–29	105	4.73			
	30–35	53	4.81	1.43	.223	
	36–41	11	4.93			
	≥42	4	4.83			
Communication	18–23	105	4.70			
	24–29	105	4.70			
	30–35	53	4.84	1.64	.162	
	36–41	11	4.72			
	≥42	4	5.00			

The ANOVA results for income groups are presented in Table 5. A significant difference was found in the game knowledge [$F_{(4, 273)}$ = 2.68, $p < .05$] and decision-making [$F_{(4, 273)}$ = 8.23, $p < .05$] dimensions of the RFES. A Tukey's HSD multiple comparison test was conducted to identify groups that significantly differed from each other.

Table 5. Results of the analysis of variance for income

Dimensions	Income	n	X̄	F	p*	Sig. Difference
Physical competency	≤407 $	112	4.46			
	408$–432 $	30	4.44			
	433 $–576$	35	4.44	1.83	.123	
	577$–721$	21	4.62			
	≥722$	80	4.63			

Dimensions	Income	n	X̄	F	p*	Sig. Difference
Game knowledge	≤407 $	112	4.60	2.68	.032	(≤407$–≥722$)
	408$–432 $	30	4.81			
	433 $–576$	35	4.70			
	577$–721$	21	4.71			
	≥722$	80	4.77			
Decision-making	≤407 $	112	4.50	8.23	.000	(≤407$–408$–432$, 433$–576$, ≥722$)
	408$–432 $	30	4.86			
	433 $–576$	35	4.74			
	577$–721$	21	4.74			
	≥722$	80	4.82			
Pressure	≤407 $	112	4.64	1.46	.212	-
	408$–432 $	30	4.58			
	433 $–576$	35	4.76			
	577$–721$	21	4.80			
	≥722$	80	4.81			
Communication	≤407 $	112	4.65	2.38	.054	-
	408$–432 $	30	4.85			
	433 $–576$	35	4.75			
	577$–721$	21	4.75			
	≥722$	80	4.80			

A significant income difference was found in mean scores on game knowledge between the ≥407$and the ≥722$groups. Participants with an income level of ≥722$ had higher scores than those with an income of ≥407$. As for the decision-making dimension, there was a significant income difference in mean scores between the ≥407$, 408$–432$, 433$–576$, and ≥722$ groups. Participants with an income level of 2826–3000 TL had higher scores than those in other income groups.

The results of ANOVA for refereeing levels are presented in Table 6. A significant difference was found in the physical competency [$F_{(4, 273)} = 12.53$, $p < .05$] and decision-making [$F_{(4, 273)} = 2.79$, $p < .05$] dimensions of the RFES. A Tukey's HSD multiple comparison test was conducted to identify groups that significantly differed from each other.

Table 6. Results of the analysis of variance for refereeing level

Dimensions	Refereeing Level	n	X̄	F	p*	Sig. Difference
Physical competency	Candidate referee	55	4.42	12.53	.000	(candidate-class-city-top-class)
	City referee	92	4.30			
	Class referee	119	4.69			
	Top-class referee	12	4.80			
Game knowledge	Candidate referee	55	4.63	1.93	.125	-
	City referee	92	4.66			
	Class referee	119	4.73			
	Top-class referee	12	4.88			
Decision-making	Candidate referee	55	4.53	2.79	.041	(candidate-class)
	City referee	92	4.69			
	Class referee	119	4.72			
	Top-class referee	12	4.83			

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Dimensions	Refereeing Level	n	X̄	F	p*	Sig. Difference
Pressure	Candidate referee	55	4.62	2.10	.100	-
	City referee	92	4.63			
	Class referee	119	4.80			
	Top-class referee	12	4.88			
Communication	Candidate referee	55	4.80	1.23	.297	-
	City referee	92	4.69			
	Class referee	119	4.73			
	Top-class referee	12	4.87			

A significant difference was found in mean scores on physical competency between the candidate and class referee groups according to the refereeing level. Participants in the class referee group had higher scores than those in the candidate referee group. Additionally, the mean scores significantly differed according to the refereeing level between the city, class, and top-class referee groups. Participants in the top-class referee group had higher scores than those in other groups. As for the decision-making dimension, the mean scores significantly differed according to the refereeing level between the candidate and class referee groups. Participants in the class referee group had higher scores than candidate referees.

DISCUSSION AND CONCLUSION

This study examined the self-efficacy of football referees in relation to multiple variables. The results obtained from the study data indicate no significant difference in gender and education; this can be attributed to similar educational levels among the referees. The lack of gender difference could be related to the lower number of female participants compared to males. With regard to gender, Dereceli et al. [20] found significant differences in male referees' mean scores on the physical competency, communication, and pressure dimensions, but no significant difference was identified in the mean scores on game knowledge and decision-making. In his study on volleyball referees, Sarıdede [21] reported higher levels of self-efficacy in decision-making and game knowledge and overall referee self-efficacy in male referees than in female referees. The study by Adıgüzel [22] on basketball referees established no significant relationship between referees' gender and self-efficacy levels. Adıgüzel's [22] study is similar to this study. Such differences in literature can be attributed to the specific characteristics of study groups [22].

The analysis of self-efficacy levels of football referees according to age revealed a significant difference in physical competency, game knowledge, and decision-making. The results indicate that the referees' levels of physical competency, decision-making, and game knowledge increase with increasing age. The literature review also shows that referee self-efficacy reduces with decreasing age [17,19,23].

The analysis of referees' income levels revealed a significant difference in game knowledge and decision-making. Game knowledge and decision-making levels increased with increasing levels of income. This result may be because of the low refereeing levels of participants with low income.

The analysis of self-efficacy levels of football referees according to refereeing levels revealed a significant difference in physical competency and decision-making. Candidate referee participants had lower scores than class referee participants. In addition, city referee participants had lower scores than class and top-class referee participants. Based on these results, it is possible to suggest that the duration of refereeing has a positive effect on referee self-efficacy [23]. These findings of the present study are supported by the literature [21–24].

In conclusion, the present study determined that the increasing age of football referees affected their decisions, and the level of their game knowledge also increased depending on this variable. In this regard, self-efficacy of young referees can be enhanced through training for improving their self-efficacy in the game knowledge, physical competency, and decision-making domains. Furthermore, referees with higher refereeing levels have higher self-efficacy. This study can be replicated with different sample populations. The self-efficacy levels of referees in various sports can be compared with that of football referees.

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